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N. S. DAVIS, M.D., EDITOR.

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HOW FAR DO THE FACTS ACCOMPANYING THE PREVALENCE OF EPIDEMIC CHOLERA IN CHICAGO, DURING THE SUMMER AND AUTUMN OF 1866, THROW LIGHT ON THE ETIOLOGY OF THAT DISEASE? *Presented to the Section on Meteorology, Medical Topography, and Epidemic Diseases of the American Medical Association, May, 1867.*

By N. S. DAVIS, M.D., Professor of Principles and Practice of Medicine, and of Clinical Medicine, Chicago, Ill.

At the meeting of the American Medical Association, in May, 1866, I read a brief paper before the Section on Meteorology, Topography, and Epidemics, in which attention was called to the alleged fact, that all the diseases usually regarded as *epidemic* could be arranged into two classes. The first class embraces all such as arise directly from a specific virus or animal poison, capable of being reproduced in the living animal body; and, consequently capable of being propagated from individual to individual in any climate, at any season of the year, and without regard to public or individual hygienic conditions. The chief members of this class are, Variola, Varicella, Rubella, and Scarlatina. The second class was represented as embracing such diseases as appear in an epidemic form only at irregular intervals, prevail only for a limited period of time,

and at any given prevalence appear incapable of propagation beyond certain geographical limits or sanitary conditions. Influenza, diphtheria, spotted fever, erysipelas, cholera, etc., were enumerated as examples of this class. In specifying the essential differences between these two classes of epidemics, in that paper, it was stated that all the members of the second class had their analogues or typical forms among the ordinary sporadic and endemic diseases of every season. It was said that epidemic "influenza has its type in the severer cases of coryza and catarrh; cholera, in the cholera-morbus of every returning summer; diphtheria, in the follicular and erythematic inflammations of the fauces; and erysipelas, in the sporadic and traumatic cases of common occurrence." Assuming such a relation to exist between these sporadic and epidemic forms of disease, it was asked whether it would not be more in accordance with the acknowledged rules of inductive reasoning, as well as more likely to lead to important and reliable results, to look for the essential causes of this class of epidemics among those circumstances and influences that are already recognized as influencing their sporadic types?

For the purpose of illustrating further, both the connection between certain sporadic and epidemic diseases, and the local causes influencing their development, I have prepared the following summary of facts observed during the year 1866. The prevalence of cholera in Europe, during the summer of 1865, led to a general apprehension that the same disease would prevail more or less in our country during the succeeding year. Influenced by a desire to gain possession of every fact that would throw light on the etiology of that disease, more especially as regarded local influences, I commenced early in the year 1866 to make an almost daily record of the atmospheric and local conditions in the City of Chicago, in connection with the prevalence and special character of diseases, and continued such record throughout the year. To enable others to appreciate the bearing of certain facts, more especially in regard to the direction and amount of winds or atmospheric currents, it should be stated that the city occupies a very level prairie on the west-

ern border of Lake Michigan. The soil is an alluvial mixture of clay, sand, and the products of vegetable decay, and is closely underlaid by a stratum of tenacious blue clay, impervious to the surface water. A wide expanse of similar low, wet prairie skirts the City on the west and south, while the open waters of Lake Michigan extend forty miles eastward, and several hundred miles north and north-east. The streets of the City are broad, straight, and cross each other at right angles, thereby affording great facilities for ventilation by atmospheric currents. Only a very few families live in basements or apartments below the surface of the ground. Winds from the south and west, passing over a wide expanse of alluvial prairie, are very cold in winter; but warm, relaxing, and more or less impregnated with malaria, or the products of vegetable decomposition, during the summer. Winds from the north and east, passing over a wide expanse of pure water, are less intensely cold in winter, but always cool, bracing, and often even chilly in summer. The general level condition of the surface, both of the City and the surrounding country, with the impervious stratum of clay subsoil, causes much surface water to be retained until returned to the atmosphere by evaporation. Consequently, dampness is a marked feature of our climate. During the year 1865, the inhabitants of Chicago enjoyed a greater immunity from fatal sickness than usual, the ratio of mortality being slightly below the average for the preceding five years. The only prominent meteorological peculiarity of that year was an unusually cold and wet summer, with high winds. The gross mortality of the City, during 1865, was 3633, the population being 187,000, gave the ratio of one death to 50, or 20 in every 1000. Of the 3633 deaths, in 1865, 612 were attributed to diseases of the bowels, namely: from inflammation of the bowels 76, dysentery 85, cholera-morbus 51, diarrhœa in adults 83, diarrhœa in children under five years of age 317. From the first of January to the first of June, 1866, the same general exemption from unusual sickness and mortality continued, as during the preceding year. The gross mortality was: for January 293, February 260, March 254, April 278, and May

275. During the months of April and May, the atmosphere was comparatively cool, dry, with abundant free electricity, and a prevalence of north, north-east, and north-west winds. The only notable exception to these general conditions, was on the 19th of May, when a direct south wind brought a current of hot, damp atmosphere, extremely oppressive, but which was followed by showers in the evening, and a cool north wind in the morning. The wind continued from the north and north-west, with a cool, dry atmosphere, and an average electrical and ozonic indication until the night of the 7th of June. The morning of the 8th was ushered in with wind from the south, and a hot, sultry, and oppressive atmosphere all day. The atmosphere was damp, and deficient in both electricity and ozone. Slight showers fell during the evening, and before the morning of the 9th, the wind changed to the west. The 9th and 10th were cool, dry, and pleasant, with winds from the north and north-east. On the morning of the 11th, the wind again changed to the south, and before mid-day, the atmosphere was more hot and oppressive than on the 8th. It continued so throughout the 11th and 12th, with showers on the evening of both days. On the 13th, the wind varied from the south to the west, with less heat, but returned to the south on the morning of the 14th, with increased heat, and copious showers of rain from the south-west in the afternoon.

During these four days the atmosphere was damp, hot, and below the ordinary indications of free electricity and ozone. The sensible effect upon the healthy animal economy, was that of relaxation, lassitude, and indisposition to exertion. In popular language it is expressed in the words, "sultry and oppressive." From the morning of the fifteenth to the twentieth, the wind was continuously from the north and the north-east. The atmosphere was cool, clear, dry, and gave indications of free electricity and ozone equal to the average. On the twentieth, the wind again changed to the south, and remained south and south-west until the twenty-seventh. During these days the mornings were almost uniformly cool and clear, but the afternoons hot and oppressive. They were dry, except the afternoon

of the twenty-first, when there were showers of rain with lightning. During the last three days of the month, the atmosphere was cool, for the most part clear and dry, with winds from the north and north-east.

Comparing these dates with my notes on the daily attacks of disease, it appears that the first notable increase of bowel-affections took place during the eleventh and twelfth, when the atmosphere was hot, damp, and oppressive. During these two days, a large number of cases of diarrhœa, cholera-morbus, and dysentery dated their origin. Far the larger number of cases occurred in children under three years of age. It was during the night of the eleventh that the first two cases, presenting all the ordinary symptoms of epidemic cholera, were observed.

One was a woman residing at 212 Kankakee Avenue, in the extreme south-eastern part of the city, while the other was a man on West Harrison Street, near the western limits of the City. (See map.) From the fourteenth to the twentieth, but very few new cases of either diarrhœa or cholera-morbus occurred. But from the twenty-first to the twenty-seventh, these diseases again increased so rapidly, that my notes on the twenty-sixth and twenty-seventh show one-half of the whole number of patients prescribed for to have had either diarrhœa, cholera-morbus, or dysentery. The total mortality in June was 319, being an increase of 45 over the preceding month, and of 126 over the corresponding month of 1865.

During the first seven days of July, the winds were from the south and south-west; the temperature high; more or less rain every day, except the fourth and fifth; atmosphere excessively damp and deficient in electricity, inducing in the animal system a feeling of languor and oppression. The only change during these seven days, was on the evening of the second, when the wind suddenly changed to the north-west, bringing a cooler atmosphere during the night, but which was again reversed in the morning. On the eighth, the wind had changed to the north-east, and the atmosphere continued chilly and damp through the day. Ninth, wind from the north, and the atmosphere cool and clear, but less damp. Tenth and eleventh, wind

south-east, atmosphere warm, but clear, dry, and pleasant. From the morning of the twelfth to the evening of the seventeenth, the wind was from the south and south-west; the atmosphere continuously hot, damp, and deficient in free electricity. About 1 o'clock, P.M., of the seventeenth, the wind suddenly changed to the north-east, bringing a cool, damp atmosphere, and a slight sprinkle of rain, and in the evening, copious showers, with thunder and lightning. During the eighteenth, nineteenth, and twentieth, the wind continued north and north-east, with a cool, clear, but moderately damp atmosphere. During the evening of the twentieth, it became cloudy, with the wind more to the south. Twenty-first, wind south, cloudy, hot, and oppressive, with copious showers in the evening, followed by a cool north-east wind, and a fine display of atmospheric electricity. At midnight, the wind again changed to the south, and the morning of the twenty-second was hot, rainy, and oppressive. The twenty-third, twenty-fourth, and twenty-fifth, were only moderately warm, and the wind mostly east and north-east, with showers every day or night, keeping the air saturated with dampness. On the twenty-sixth, twenty-seventh, and twenty-eighth, the winds were continuously from the south; the atmosphere filled with clouds, mist, and sometimes rain, and very hot. During the night of the twenty-eighth, the wind changed to the north, and the twenty-ninth, thirtieth, and thirty-first, were cool, clear, and pleasant.

It will thus be seen that the most prominent meteorological characteristics of July were, high temperature; frequent rains; excessive dampness; south and south-west winds, with deficient free atmospheric electricity. The principal exceptions to this rule were from the seventeenth to the twenty-first, and from the twenty-ninth to the thirty-first. The average temperature of the month was here, as in most other sections of our country, above the average of the preceding ten years.

In regard to local sanitary conditions, it is proper to state that, although the scavenger system adopted by the City authorities had served to keep the streets and alleys of the central part of the City some cleaner than in former years, yet up to

the last day of July, there were extensive sections of the City, thickly covered with dwellings, in which not even a street-gutter had been cleaned out, and both branches of the Chicago river were in their usually offensive condition. As might have been expected, from the local and atmospheric conditions just detailed, the prevalence of intestinal diseases in the City, during the month of July, was much above the average of the preceding three or four years.

It was stated that from the twentieth to the twenty-seventh of June, there was a prevalence of south winds, with a hot, damp, and oppressive atmosphere, during which, "serous diarrhoea and dysentery increased rapidly among young children, and to some extent among adults." The cool invigorating atmosphere of the last three days of June checked this tendency in some degree, but the renewal of the hot, damp, and showery weather of the first seven days of July, again increased rapidly the number of attacks of cholera-morbus, cholera-infantum, diarrhoea, and dysentery.

During the sixth and seventh, particularly, the attacks of bowel-affections were, not only numerous, but they were accompanied by unusual languor, prostration, and sweating. The days and nights were hot, cloudy, some rain, and slight wind from the south. Two cases of sunstroke were reported on the seventh.

On the night of the sixth and morning of the seventh, I saw four children presenting symptoms of great prostration; countenances pale; pulse slow and weak; respiration slow and inefficient; mental faculties dull, or in a state of semi-coma, from which it was difficult to arouse them; occasional sighing, and momentary restlessness; but with little or no evacuations of any kind. Their paleness and apparent lifelessness was the chief cause of alarm to the parents and friends. I have noticed a few similar cases during the first extremely hot days and nights of almost every summer. They appear to be the result of a deficiency of atmospheric oxygen and electricity, coupled with the relaxing influence of a high temperature. From the eighth to the eleventh, the number of new attacks of bowel-affections

was less, and the larger number of those that did occur, presented the form of dysentery. But from the eleventh to the seventeenth, the cases of serous diarrhœa and cholera-morbus, especially among children, increased so rapidly that two-thirds of all the patients who came under my observation during that period, were of this class.

Among my daily entries in the note-book, is the following: "During the night of the sixteenth, the air was very hot and oppressive. Both that and the preceding night, children with bowel-complaints became very restless and prostrate, with discharges thin as water. Several were taken suddenly prostrate, drowsy, and feverish, without any discharges." Other periods of rapid increase of new attacks took place during the twenty-first and twenty-second, and from the twenty-sixth to the twenty-eighth, inclusive. According to my notes, four-fifths of the cases of serous diarrhœa and cholera-morbus, that occurred during the whole month, had their *commencement*, either between the first and seventh, the eleventh and seventeenth, twenty-first and twenty-second, or twenty-sixth and twenty-eighth, while the cases of dysentery occurred more uniform throughout the month. If these dates are compared with the detail of atmospheric conditions, it will be seen that a hot and damp atmosphere invariably accompanied the unusually rapid multiplication of cases of diarrhœa and cholera-morbus. Are these atmospheric conditions, coupled with the idio-miasmatic influences generally present in densely populated cities, capable of causing attacks of genuine spasmodic cholera? As bearing on this question, I will simply relate the following facts:

On the night of the seventh of July, one of the most oppressive that occurred during the month, a lady living at 160 Western Avenue, on the extreme western limits of the City, began to have disturbance of the bowels, with serous discharges, which culminated in severe cholera symptoms on the night of the eighth, including the characteristic rice-water discharges by vomiting and purging; severe cramps in the muscles of the extremities and abdomen; a small weak pulse; skin shrivelled and cool; voice husky, etc. Under appropriate treatment she recovered.

Mr. L., living at 200 Huron Street, in the North Division of the City, commenced having serous diarrhœa on the evening of the seventh, which developed into full severe cholera during the night of the ninth.

On the morning of the eleventh, a lady from Kansas arrived at the Adams House, one of the principal hotels of the City. She had been much fatigued by the long journey, and had suffered from a moderate diarrhœa during the three preceding days. Soon after her arrival, the discharges began rapidly to increase, and at noon, she was presenting every symptom of severe cholera. The discharges, up and down, were copious, rice-water in appearance, and accompanied by severe muscular cramps in the extremities. Two hours later, when I saw her, the eyes were deeply sunken; the extremities cold and skin shrunken; the pulse extremely weak; the voice reduced to a whisper; the cramps severe, and the intestinal discharges wholly involuntary. Under treatment the discharges ceased, reaction took place slowly, and the patient ultimately recovered.

On the afternoon of the twelfth, a baker aged about twenty years, living at 172 West Lake Street, was suddenly attacked with severe symptoms of cholera. I saw him about two hours after the commencement of the attack, and the cholera symptoms were strongly marked in every particular. The day was excessively hot, and the man had indulged in drinking eight or ten glasses of beer, two of brandy, besides considerable water.

During the night of the sixth, or morning of the seventh, Mr. R., aged fifty-five years, living at the corner of West Indiana and Sangamon Streets, was attacked with all the symptoms of violent cholera. He had long been in infirm health, and when I saw him, about noon of the seventh, he was in complete collapse. Partial reaction took place, and he lingered until the tenth, when he died.

Mr. W., aged forty-five, living at 245 Madison Street, was attacked with all the symptoms of cholera, on the night of the fifteenth. I saw him early in the morning of the sixteenth, when the characteristic features of the disease were as perfect as in cases seen in the midst of the epidemic of 1854.

Mr. D., aged thirty-five years, a laboring man of intemperate habits, living on Franklin Street, near Jackson, was attacked during the night of the fifteenth. When I saw him, early in the morning of the sixteenth, he appeared to be in the commencement of collapse. Reaction, however, took place, and secondary fever followed, but he finally recovered.

Early in the morning of the twenty-second, I was called in quick succession to three cases of adults, who had been suddenly attacked during the latter part of the night previous with vomiting, purging, cramps, etc. They were seen during the early part of the active stage, and readily yielded to treatment.

On the twenty-first, a case occurred at 282 West Chicago Avenue, which was reported to the Board of Health as genuine epidemic cholera, by Dr. Addison.

Such were the indications of cholera among adults in this City during the month of July, as they came under my own observation. During the whole month cholera-infantum was unusually prevalent and fatal. That the month of July, 1866, was attended by a much greater proportion of bowel-affections than usual, is apparent from the very great increase of mortality. The whole number of deaths in July, 1866, was 706; while for the corresponding month of 1865, it was only 425.

The last three days of July were cool, clear, and pleasant.

It remained cool, with a prevalence of north and north-east winds until the morning of the eighth of August. Showers of rain fell on the third, and steady rain all the night of the sixth. On the morning of the eighth, the wind changed to the south; the air was filled with mist or aqueous vapor, and at midday, was very hot and oppressive. Between five and six o'clock in the afternoon, the wind suddenly changed to the north, and the atmosphere became so cool as to produce chilliness. It remained cool and clear until the eleventh, when the wind changed to the south, the sky became cloudy, and in the evening there fell copious showers with sharp lightning. The twelfth was mostly clear, wind south, and atmosphere very warm and damp. These conditions continued until 11 o'clock, A.M., of the thirteenth,

when the wind again changed to the north, and the air became cool and clear. But at midnight, the direction of the wind was reversed, and the morning of the fourteenth was hot, damp, and oppressive, followed by showers of rain in the afternoon. From this time to the twentieth, the atmosphere was still, or moved only slightly by winds from the south or south-east, very damp, and moderately warm. During the seventeenth and eighteenth, especially, the air was still, and so light that smoke and mist hung close to the earth, instead of rising to the higher regions or drifting away with atmospheric currents.

Rain fell moderately on the evening of the eighteenth and the afternoon of the twentieth. From the twenty-first to the twenty-fifth, the wind was from the north, and the atmosphere cool, even to chilliness at times. Rain fell nearly all of the twenty-third. From the morning of the twenty-sixth to the thirty-first, the atmosphere was again still, damp, and moderately warm, very similar to that from the fourteenth to the twentieth. It was filled with smoke and mist, especially during the nights. The slight winds that were felt, came from the south or south-west, except during the afternoon of the twenty-eighth, when it blew from the north-east, and was cooler.

Slight rains fell on the twenty-ninth and thirtieth, and in the evening of the thirty-first, copious showers fell, with *thunder* and *lightning*, during which the wind changed to the north-west, and blew a stiff breeze. Vivid flashes of lightning continued until a late hour of the night. It was the first display of the kind during the month. From the first to the twenty-fifth of September, the weather was almost continuously cool and rainy, with a prevalence of north and north-east winds. The rains were so frequent and copious that the surface of the earth was kept constantly saturated with fresh fallen water. Occasionally, the sun would shine out clear and warm for two or three hours in the middle of the day; but during the whole time named, there were not three consecutive warm, dry days.

From the twenty-sixth of September, however, to the seventh of October, the atmosphere was clear, moderately warm, and pleasant.

The prevalent winds were from the north, north-west, and north-east. On the seventh, the wind changed to the south and became very light. From that time to the thirteenth, the atmosphere was filled with mist and smoke, and so still as to be scarcely moved by a breeze either day or night. The sky was, most of the time, clear and the atmosphere warm. On the thirteenth, a light breeze sprang up from the north-east, the air was more heavy, and the mist and smoke that had so steadily filled the lower strata of the atmosphere, were dissipated in twenty-four hours. From this to the nineteenth, the weather was mostly clear and pleasant, though warm, and very little wind from any quarter. On the twentieth, there came a strong south west wind, accompanied by clouds and some rain. During the afternoon and evening, the wind became a severe gale, and blew down the walls of some unfinished houses in the City, and during the night, copious showers fell, accompanied by vivid lightning. The twenty-second was cold, mostly clear, with a strong west wind, and frost at night. The twenty-third was cold, cloudy, with a light fall of snow, sufficient to whiten the side-walks.

During the first seven days of August, attacks of cholera-infantum and serous diarrhoea were less frequent than in the middle of July. On the eighth, there was a sudden increase of these affections, and a still more marked increase on the twelfth, when I met one case of cholera at 109 North Water Street, and another on Wabash Avenue, south of Twelfth Street. On the sixth of August, a company of Mormons left one of their number, a native of Denmark, sick at the Rail Road Depot, from whence he was taken to the County Hospital, located between Eighteenth and Nineteenth Streets, where he died in the evening of the same day, with all the symptoms of epidemic cholera. On the ninth, three days after the Dane died, a female nurse, and a male inmate of the Hospital were attacked. From that time, one or more cases occurred daily among the inmates until the eighteenth, when it ceased. The whole number of cases occurring in the institution was 19, of whom 11 recovered and 8 died.

Nearly simultaneous with this outbreak, in the County Hospital, cases of cholera occurred in almost every section of the City. Two were known to occur on the twelfth: one was at 109 North Water Street, and the other on Wabash Avenue, south of Twelfth Street. One case was reported on the thirteenth, at 61 East White Street. Five on the fourteenth, namely: at 241 Monroe Street, 239 Illinois Street, 63 Michigan Avenue, and 323 South Morgan Street; and fifteen on the fifteenth, namely: at 261 and 288 South Wells, 4 Wendell, 43 Quincy, 33 Pierce, 109 and 115 North Water, 125 Superior, 218 DeKoven, 461 South Clark, Alley rear 169 Polk, 65 Indiana, Tremont House, man from St. Louis, and 62 South Canal Street.

From this date to the twentieth, new cases occurred daily in all parts of the city. From the twentieth to the twenty-sixth, the number of cases diminished, but again moderately increased during the remainder of the month. From the first to the twentieth of September, the disease continued in pretty uniform rate of prevalence, although it was restricted more closely to the population of foreign birth, and in parts of the City least improved by drainage and cleanliness. During the two weeks intervening between the twenty-third of September, and the fifth of October, the number of attacks diminished to such a degree that the disease was regarded by many practitioners in the city, as substantially extinct.

The whole number of deaths attributed to cholera during the month of August was 139, and September 166, or an average of five deaths per day. On the seventh of October, however, it was apparent that the disease was again rapidly increasing, seven deaths having been reported on that day. Cases continued to multiply rapidly until the twelfth when the number of deaths, daily, were about 30. From this date until the severe storm of wind and rain on the twenty-second, the disease gradually declined, and then suddenly ceased. The whole number of deaths attributed to cholera during the month of October was 673, being an average of nearly twenty-two per day.

The City is divided into sixteen wards, and though the cholera prevailed in all of them, such prevalence was very unequal.

Thus, of 1550 cases reported to the Board of Health, during the months of August, September, and October, 474, or nearly one-third of the whole, were in the Seventh, Fourteenth, and Sixteenth Wards, while only 130 were in the Fifth, Eighth, and Ninth. The localities of its prevalence will be better appreciated by reference to the accompanying map. The deep red lines bound the several wards. The Seventh may be said to constitute the centre of the Irish laboring population, while the Fourteenth bears the same relation to the Germans.

The number of cases of cholera reported to the Board of Health from the Seventh, was 1 per every 100 inhabitants, and in the Fourteenth, it was 1 for every 95 of population. While in those sections, inhabited almost exclusively by Americans, the ratio reported did not exceed 1 in 250 of the population.

The special districts of cholera prevalence, cannot be accurately represented by the wards, and hence, they are better defined on the map by deep blue lines.*

The predilection of the disease for certain localities was not more apparent, than for the different classes of people and nationalities. The total population of Chicago is nearly equally divided between natives of the United States and those of foreign birth. But of 1500 cases of cholera, concerning which the nativity was given, 287 were natives of the United States;

*The reader will better understand the topography of Chicago if we explain that the highest, most sandy and dry parts of the City lie between Clark Street and the Lake shore, both in the North and South Divisions, and in the Ninth and Tenth Wards, in the West Division. These portions are occupied almost wholly by the best class of residences, and most thoroughly drained by permanent sewers.

The lowest and most alluvial districts skirt both sides of the North and South Branches of the River; but more especially between the east bank of the North Branch and North Wells Street, in the North Division, and between the west bank of the South Branch of the River and South Halsted Street, south of the line of Van Buren Street, in the West Division. These districts are not only low and alluvial, naturally, but they are only partially intersected by sewers, and are covered pretty thickly by a laboring population of foreign birth.

The great business centre of the City is embraced in the First Ward, but extends into the Sixteenth Ward, north, and into the Tenth and Eleventh Wards, west.

546 of Germany; 373 of Ireland; 98 of Norway; 45 of Sweden; 42 of England; 34 of Bohemia; 15 of Canada; 13 of Scotland; 9 of Holland; 9 of France; 9 of Denmark; 7 of Finland; 6 of Belgium; 4 of Switzerland; 3 of Italy; 4 of Poland; 1 of Prussia; and 1 of Portugal.

The total mortality for 1866 was 5937, of which 990 were attributed to epidemic cholera, and 1176 to other bowel-affections. Ratio of deaths to population, 1 to 35.

A careful examination of all the facts thus far set forth, will fully establish the following propositions:

1st. That the cause, or causes which gave rise to the unusual prevalence of bowel-affections, in Chicago, during the year 1866, commenced their influence in June, and continued it until the end of October.

This is strikingly exhibited by the following table:

	1865.			1866.		
	Total Mortality.	Chol- era.	Other Bowel- Affections.	Total Mortality.	Chol- era.	Other Bowel- Affections.
June,-----	197	0	20	319	0	45
July,-----	425	0	163	706	2	297
August,-----	464	0	208	940	139	376
September,--	346	0	112	739	166	205
October,----	360	0	66	1170	673	114
November,--	299	0	40	382	12	28

2nd. That cholera, cholera-morbus, and diarrhœa, in both children and adults, were uniformly increased by high atmospheric temperature and moisture, coincident with south or south-west winds, and the surface of the earth *moist*, that is, neither covered with fresh fallen water nor completely dry.

3rd. That the epidemic cholera, especially, manifested a striking predilection for, and adherence to, such localities as presented the greatest dampness, coupled with the greatest accumulation of decomposable animal and vegetable matter, with the least facilities for ventilation and drainage.

4th. That neither in its beginning, progress, or decline, could there be traced any influence from the importation of persons or goods from other localities.

For instance, it began in persons who had resided in Chicago

for several years; in localities remote from railroad depots, docks, hotels, and warehouses, and in persons who had not been at work in such places; (see cases at 212 Kankakee Avenue, and corner of West Harrison and Morgan Streets, in June, 160 Western Avenue, corner of West Indiana and North Sangamon Streets, 282 West Chicago Avenue, and others in July;) and the disease was altogether most severe and fatal in those sections of the City remote from connection with the centres of trade and travel (see Seventh and Fourteenth Wards, on the map.)

The first case that could be supposed to have brought the disease from some other locality, was the Dane who was taken from the railroad depot to the County Hospital, on the sixth of August. But if we look to this individual for the introduction of the disease, how shall we account for the occasional cases presenting all the phenomena of cholera, and the extraordinary mortality from bowel-affections during the whole of July preceding?

Again, if this individual introduced the infection, why did it not extend first among the large laboring population immediately around the Hospital, in the Third Ward, instead of appearing almost simultaneously in a dozen remote portions of the City, and in persons who had had no possible communication with either the Hospital or its inmates?

By what law of diffusion did it leap over the intervening thousands from the Hospital on Eighteenth Street, in the Third Ward, to light on three children in an alley out of White Street, in the Fifteenth Ward, and with such violence that they were all dead within twenty-four hours? Or, how, during the same day, did it get by everything in front, and search out a poor, secluded old woman, living in a dirty, damp, old house in the rear of 288 South Wells Street? We might go on multiplying such questions indefinitely. It has been said by those who regard the essential cause of cholera as existing in the dejections, that the disease is often spread unsuspectingly by "walking" cases of the disease; that is, by persons having true cholera diarrhœa, but not so severe as to deter them from going about or travelling, and consequently depositing the cholera poison, wherever they

chance to deposit their intestinal evacuations. Unfortunately for this theory, however, many of the early cases of cholera, occurring in this City, in the recent epidemic were in localities so remote or secluded that no stranger or traveller in the city would have had the remotest chance of entering them either by accident or otherwise. On the other hand, it frequently happened throughout the whole season, that a case of violent cholera would occur in a boarding-house, or a hotel, and remain until death or recovery, without imparting the disease to a single other occupant of the same premises during the season. For instance, early in August, a man coming direct from St. Louis, was attacked with cholera on the cars, and on his arrival he was taken in a hack to the Tremont House, where he died the same day. Yet no other case followed it in the same hotel. Indeed, according to my records, a large majority of the cases that came under my personal observations, presented but a single case in the same house. The circumstances, however, which seem to illustrate most strikingly the influence of local causes on the prevalence of this disease, occurred in the latter part of the season.

As already stated, the month of September was characterized by almost constant rains from the first to the twenty-fourth of the month. The consequence was that the level and only partially drained portions of the City, became flooded with fresh fallen water. This was particularly the case in the Sixth, Seventh, Eleventh, Twelfth, and the parts of the Fourteenth, Fifteenth, and Sixteenth Wards, lying between Wells Street and the North Branch of the River. These sections of the city are covered with small wooden houses, occupied chiefly by a population of foreign birth. All of these have out-of-door privies, and many of them board shanties for stabling a horse or cow, or both, on the rear end of the lots. Very few of the privy-vaults are water-tight. Consequently the copious rains of September caused hundreds of these to overflow with water, carrying the fluid part of the contents, with the mascerations of the manure heap into the surface soil of the whole lot. While the flood of fresh fallen water continued, no deleterious consequen-

ces were developed. On the contrary, the prevalence of cholera steadily declined from the fifteenth to the twenty-fifth of the month. So much so, that at the latter date, its prevalence was very generally regarded as ended. Its prevalence in a severe epidemic form had also ceased in the neighboring cities of Cincinnati and St. Louis. On the twenty-fourth of September, the rains ceased, and the atmosphere became clear, cool, and pleasant, and remained so until the end of the month. In the meantime, the Annual State Agricultural Fair opened in the City on the twenty-fourth, and during the six succeeding days was freely visited by thousands, coming from every part of the State. Yet all this company of strangers came and went wholly unharmed, so far as as sickness was concerned. In the meantime, the excess of fresh surface water had been dissipated, and to a casual observer, streets and lots looked dry and pleasant.

During the first week in October, the sky continued clear, the atmosphere was warmer, and scarcely moved by a breeze for several days; emanations began to rapidly impregnate the air from the surface soil so recently saturated with water holding in solution the contents of privies, etc., and by the end of the week, cholera was again doing its work of death with three-fold greater rapidity than at any previous time during the summer. Can there be any doubt about the relation between causes and effects here? There had been no trace of any fresh importation of the disease from other cities or towns; and yet, under certain conditions of soil and atmosphere, it attains the proportions of a perfect epidemic almost in a day. Thus developed, its ravages continue until between the twenty-first and twenty-third of the month, when these same conditions become suddenly and violently reversed, attended by an equally sudden disappearance of the disease.

It may be said that the cholera infection, or "seeds," had been previously scattered throughout the City, and that the local and atmospheric conditions described, only served to multiply and impart activity to the previously existing poison. If we admit this, it still leaves in full force the fact of paramount

practical value, that whatever may be the origin of the supposed cholera infection, or *germs*, the safety of every community depends upon its own atmospheric and sanitary conditions. Without entering into the domains of theoretical controversy, I will only add the opinion that whenever the origin, progress, and termination of cholera epidemics shall be carefully and minutely studied in their relation to the preceding and accompanying local and atmospheric conditions, and to the prevalence of sporadic cases, with other bowel-affections, it will be found that the same causes that are now acknowledged to be necessary to give *activity* to the supposed infection, are also capable of *originating* it.

ARTICLE XLVIII.

TRACINGS OF THE PULSE WITH MAREY'S
SPHYGMOGRAPH.

By H. A. JOHNSON, M.D., Prof. Diseases of the Circulatory and Respiratory Organs, in Chicago Medical College.

Read to the Illinois State Medical Society, June, 1867.



(Fig. 1.)

1st. Trace of dirotic pulse, taken with the sphygmograph from the radial artery of a male patient, *æt.* 35, with typhoid fever, at the end of the third week. Passive congestion of both lungs had just taken place. Treated with quinine in liberal doses, with camphor and morphia. Patient recovered.



(Fig. 2.)

2d. Trace from patient affected with typhoid fever. Male, aged 40; native of Nova Scotia. Taken sick in Nebraska. Intestinal complications not troublesome. Trace taken at the

end of the third week. Patient treated with chloride of sodium. Recovered.



(Fig. 3.)

Trace from patient affected with typhoid fever. Male, aged 30. Bowels troublesome; lungs suddenly congested. Trace taken at the end of the third week, at the very commencement of the pulmonary complication. *Treatment*.—Emulsion of turpentine and laudanum, with quinine, camphor, and strychnia. Died.



(Fig. 4.)

From a patient having typhoid fever. Male, aged 24. Came under treatment at the tenth day. Lungs badly congested; great prostration. Trace taken on the tenth day. Died on the twentieth day.



(Fig. 5.)

Pneumonia of right lung. Male, aged 20, Swede. Came under treatment on the fourth day. Trace taken at first visit. Treated with calomel, opium, and ipecac., and afterwards with iodide of potassium, blisters, expectorants, etc. Patient rapidly recovered.



(Fig. 6.)

Pneumonia of right lung, involving nearly the whole of the lung. Male, aged 30. 1st trace (Fig. 6.) taken on sixth day. Treated with cathartics and iodide of potass., followed with



(Fig. 7.)

mixture of scil., ip., sanguinaria, and opium. 2d trace (Fig. 7. taken on the 10th day. Patient recovered.



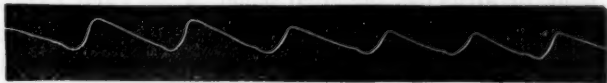
(Fig. 8.)

Prostration from chronic gastritis. Male, aged 30. Has been sick six months. Has paroxysms of cough, attended with great distress; lungs healthy.



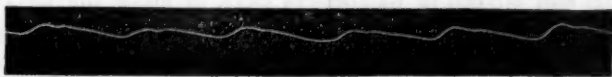
(Fig. 9.)

Rheumatism. Male, aged 40. Had rheumatism first about five years ago. 1st trace (Fig. 9.) taken on coming under



(Fig. 10.)

treatment. Put upon colchicum, in full doses. 2d trace (Fig. 10.) after six days' treatment. Left cured on the 10th day.



(Fig. 11.)

Rheumatism, not severe. Male, aged 43.



(Fig. 12.)

Contraction of aortic opening. Female, aged 8 years.



(Fig. 13.)

Functional disturbance of heart's action. Male, aged 50, German. Has had trouble with heart for a long time; has also been treated for disease of the kidneys; heart sounds normal in quality, but irregular in rythm and intensity. The trace shows the ordinary movements of the organ. Not much inconvenience is experienced. Did not know that anything was the matter with his heart till told so by a physician. Urine loaded with the urate of ammonia; otherwise normal.

Foreign Correspondence.

THE INTERNATIONAL MEDICAL CONGRESS.

PARIS, Aug. 17, 1867.

This body of medical men, selected from the whole civilized world—from San Francisco to Constantinople, at least—assembled yesterday for the first session. The meetings are held in the Ecole de Medicine, the great school of the Paris Faculty of Medicine. In some respects, the French are behind the age in conducting voluntary conventions. There has been very little pains taken to render the advent and the stay of delegates agreeable and convenient. All that free-hearted zeal which welcomes our American Medical Association to its yearly gathering, and strives, in numberless ways, to make the members enjoy their visit, is wanting here. The Parisians seem to suppose that it is a sufficient blessing to outside barbarians to be permitted to come to the Parisian Paradise, and hear the medical angels expound their discoveries. The *concierge* at the gate did not know where the Secretary was, when he would be in, nor whether the Congress was to have such an officer, until numerous inquiries awakened a suspicion of the fact in his mind. No directions were posted, as to where credentials were to be presented, or names recorded. The delegates ran about the building in a bewildered state, inquiring of each other where the Secretary was, using first one language, and then another, as if a man who did not know a fact in French or English,

might possibly be aware of it in Dutch. Finally, the Secretary was discovered in a side apartment, with no clue to its location visible. He looks at the credentials, but keeps no general register or directory in a visible form for the reference of delegates. Probably, he has a list somewhere, for the records.

The sessions are held, as I said before, in the *Ecole de Medicine*. This is, in some respects, a fine building, but characteristic of the French nation in its arrangements. It has an expensive and imposing colonnade in front, consisting of some thirty or forty pillars of hewn stone. The amphitheatre has a vaulted ceiling, elaborately paneled and ornamented, and the walls over the desk are hung with some immense and costly paintings. The walls are draped with velvet and damask around the entire room, and above hang the flags of all nations, in graceful clusters. The seats—what a descent!—the seats are benches of bare boards, ten inches wide, and without any backs. The French students who sit for seven years on such seats, must have the patience of martyrs. I recommend the government to sell one or two of the stone columns in front, and appropriate the proceeds to the construction of some comfortable chairs for the pupils.

At 2 P.M., August 16, the President, Prof. BOUILLAUD, who is renowned for having first brought to light the connection between rheumatism and carditis, entered the desk, and called the assembly to order. About 700 were present. The Secretary-General, Dr. JACCOUD, assisted him, and by his great power and clearness of voice in all his announcements and readings, made atonement for the obscurity of his whereabouts before. The President then read a lively and brief address, which showed that he had gathered neither loquacity nor dulness, by his advanced age. He welcomed the delegates to Paris, and pointing to the standards of the various nations, grouped around the walls, he said: "Let us salute these flags, then, by uniting our hands, as these interlaced banners are united, in sign of complete cordiality and entire fraternity." The gracefulness of the figure took the audience by surprise and brought down a storm of applause.

After the close of the address, the reading of the papers commenced. The topic of the day was expressed as follows:

"Anatomy and Physiology of Tubercle. Tuberculization in the Different Countries, and its Influence upon the General Mortality." The papers presented, were by Prof. SANGALLI, of Pavia; Dr. VILLEMIN, of Paris; Prof. CROCQ, of Brussels; Prof. LEBERT, of Breslau; Dr. MARMISSE, of Bordeaux; Dr. D. LEE, of London; Dr. LARRAMEA, of Bordeaux; Dr. ULLERSPERGER, of Munich; Dr. HOMAN, of Christiana.

After two papers had been read, it became evident that the session was likely to last many hours, and the audience became restless.

Dr. VAN LOHE, a Hollander, rose and began to express his dislike of the order of business and his desire that the Congress should use its rights, and discuss such topics as it deemed best, instead of simply hearing a series of papers read. He commenced as follows:

"Mr. President, is it allowable for me to ask a question?"

The President said: "Certainly, proceed."

He proceeded, therefore, in this wise: "I am a foreigner; I am a Hollander, and, as a Hollander, was sent into this assembly to assist at the Congress. But, up to the present time, I find myself mistaken. It looks to me as if this were not an International Medical Congress, but a court, or a college where the physicians concerned have got together to hear each other read, and for mutual admiration."

The audience waked up at this thunderbolt, and began to applaud the bold Hollander. The President, however, checked him, and courteously reminded him that there was a regular programme of topics, to which it was necessary to conform. Dr. V. L., however, was not to be put down, and proceeded with his speech. The President tried, in vain, to stop him. Finally, the audience deemed that he was going too far, and hissed him down. He took his hat and went out. He reappeared, however, the next day, and the President offered him an opportunity to finish his remarks, but he did not choose to avail himself of the permission.

August 17, at 8 P.M., the second session commenced, there having been no meeting during the day.

The first paper read was on a new operation for opening abscesses of the liver, which had been practiced in Mexico. The second was by Dr. GALEZOWSKI, of Paris, on the alterations of the retina in the tuberculous diathesis. Some fine colored drawings were shown, displaying the increased vascularity of the retina in tubercular meningitis, as seen through the ophthalmoscope.

Another paper was read on the same topic, the two together being illustrated with some forty colored drawings of diseased retinae. Two papers were also read on the treatment of tubercle. After each reading, time was allowed for discussion, which was embraced with more ease and skill than is usual in the American Medical Association. Each speaker advanced to the tribune, and addressed the Congress in a seated posture, a rather awkward position for a speaker; however, the remarks were brief, vigorous, and lively. There was less stiffness than in American scientific bodies, wit flowed freely, and the Congress laughed with great hilarity.

I send this report by the steamer about to sail, and will forward the remaining proceedings by a future mail.

E. ANDREWS, M.D.

PARIS, Sept. 1, 1867.

TO THE EXAMINER:

The discussion on tuberculosis, to which I referred in my last letter, brought out very contradictory opinions, which are at present irreconcilable.

Mons. VILLEMEN has made elaborate observations and experiments which lead him to believe that tuberculosis is as much a specific disease as syphilis or variola, and that it may be taken by contagion and propagated by inoculation. Mons. LEBERT, on the contrary, thinks that there is nothing specific about tubercle, and that its elements are purely inflammatory products. He has made a series of experiments, by which he believes he has proved that tubercle may be produced by injecting into

the blood various products of disease, and even mineral substances, such as mercury and carbon. These particles being carried to the lungs by the pulmonary artery, become lodged in the capillaries mechanically, and acting as points of irritation produce tubercles, inflammatory in their real nature, and having all the microscopic and pathological characters of the tubercles of consumption.

Between these conflicting doctrines, it seems we must rest, and wait for more light. The general drift of sentiment in the Congress was, that there is no peculiar anatomical or histological element in tubercle, whatever may be true of its diathesis, or of its virus, if any exists.

On the second day, among other topics, came up that of menstruation, as affected by climate, race, etc. Some elaborate statistics were produced upon the subject of the average age at which menstruation commences among different people. M. LAGNEAU gave the following classification of some 15,000 observations:

Race.	Average age of first menstruation.			
North Germans, -----	16	years,	9	months, 16 days.
English, -----	14	"	11	" 2 "
French, -----	15	"	1	" 21 "
Southern Asiatics, -----	12	"	11	" 17 "

Mr. ROBERT COWIE, of the Shetland Islands, sent a paper on the "*Prolonged Menstrual Life in the Shetland Islands, and its Relation to Longevity*," in which he shows that the Shetland women retain that function very late in life, the average time of the turn of life with them being from 50 to 54 years. By comparison with Scotland, he shows that this late retention of the menstrual function is also accompanied with an increased longevity. He asserts that the age of commencing menstruation does not differ from that of other parts of the kingdom.

On the third day, Professor POLLI, of Milan, known for his experiments on the antiseptic effects of the sulphites in the inferior animals, read a paper on the use of these articles as medicines in septic diseases, and detailed the Italian experience in their use. Both he and the whole Congress seemed to be in

blessed ignorance that this matter had been tested and discussed several years ago in Chicago, and that to Dr. FISHER, Dr. DAVIS, and to the CHICAGO MEDICAL EXAMINER, belonged the credit of publicly establishing the practical value of the remedies. If the European savants would regularly take and read some of the American medical journals, they would often find that ideas which are quite new to them have been discussed for years in America.

On the fourth day, was discussed the very important topic of the accidents which follow surgical operations, such as erysipelas, hospital gangrene, and pyæmia.

It is frightful to contemplate the destruction of life in European hospitals by these diseases, and to perceive that it is kept up by the gross mismanagement of even their best and most eminent men.

The great murderous sin of European hospitals is want of ventilation. They are afraid of pure air, and, consequently, pyæmia is a fearful surgical scourge. Mr. GOSSELIN, at the Hopital de la Pitie, innocently reports that he has an epidemic of erysipelas regularly, almost every winter (at the season when the weather causes the windows to be closed), but seemed to have no suspicion that it might be prevented with ease. He also reports, with the utmost coolness, that of the cases which originate in the hospital every third patient dies. I think this is perfect butchery, and I cannot help comparing it with the better practice in Chicago, where, in Mercy Hospital, deaths from pyæmia and erysipelas have become an almost unknown thing, being completely banished by the simple expedient of opening wide the windows, and keeping every surgical patient, night and day, in a current of pure air. Prof. PAGET, of London, has recently experimented in the same way, though he does not seem to be aware that we had settled the matter in Chicago, and published it years ago. His report confirms my experience. He says that the most efficient preventive of pyæmia, is to place the patient in a constant current of pure air, an announcement which ought to strike like a peal of thunder on the ears of European surgeons. The effect of foul air in

Paris hospitals is such that they do not dare to close wounds by first intention. I have seen them fill the space between the flaps of an amputation with charpie, as they used to do in the dark ages, and the risk of pyæmia is so great as to render many valuable operations wholly unjustifiable.

The surgeons represented in the Congress generally admitted that ventilation favored escape from pyæmia, but the idea rested in their heads in a very sleepy, foggy manner. Not one of them seemed to be aware of the fact that this cause of death can be completely removed by the means of fresh air. The papers which were read showed that the authors were blindly fumbling about in the *materia medica*, to find some medicament which would enable them to combat pyæmia without pure respiration. Some used a solution of perchloride of iron, applied to the flaps of amputated cases; others applied solutions of carbolic acid; others employed various measures, all very useful and valuable in themselves; but deadly blunders were committed in this respect, *viz.*: they all invited the profession to rely on these secondary measures, instead of *perfecting the ventilation of the hospitals*.

On the fifth day, came up the famous question, "Is it possible to propose to the various governments efficacious measures for restraining the propagation of venereal diseases?"

This question received all sorts of elucidations except clear ones. Those most interested in the discussion, were evidently of the number of those who desired a system of licensed prostitution. Some of the statistics presented were horribly erroneous, as I happened to know from personal investigations, and, on the whole, the discussion of the real question was loose, wandering, and inconclusive.

After the papers were read, verbal discussion upon the subject commenced. The veteran author on syphilis, RICORD, was in the chair. In a few minutes the hot blood of the disputants got the mastery over parliamentary order, the original question was forgotten, and the speakers plunged headlong into a dispute whether syphilitic inoculation was to be commended or not. M. RICORD, though chairman, took an active part in

the contest, and pushed his opponents with a relentless vigor that was refreshing to behold, but not very parliamentary for a presiding officer.

M. AUZIAS-TURENNE had advocated "syphilization," as the grand remedy and preventive. M. RICORD rose and said, that at the first publication of the plan of syphilization, he had demanded that the author should test the innocence and excellence of his practice by a trial of it on his own person. He had never yielded to that demand. Now, if M. AUZIAS-TURENNE wished that they should believe in syphilization, let him have the courage to syphilize himself.

Auzias-Turenne.—"Syphilization must follow the road of all other scientific questions. It is to be judged by the facts in the annals of science, and not by the measure of my courage or cowardice."

Ricord.—"I ask no more than that he should believe his own doctrine. If syphilization is a truth, it follows that soft chancre is to hard chancre what vaccinia is to variola. AUZIAS-TURENNE would then be the JENNER of this kind of pox, and we ought to erect statues to him. Once more, then, I say, if AUZIAS-TURENNE believes in syphilization, let him syphilize himself. Enough of patients have paid their health, and even their lives, for the pretended benefits of syphilization."

A Member of the Congress.—[Shouting at the top of his voice.] "I am a physician. I have been syphilized, and I am perfectly healthy."

Another Member.—"Why don't AUZIAS-TURENNE do it?"

The First Member.—"Because he has not renounced marriage. As for me, I have renounced it. What father or mother would give their daughter to a syphilized man?" [Laughter.]

Ricord.—"On the contrary, syphilization being such a safeguard, syphilized men ought to be in great demand for husbands." [Laughter.]

Auzias-Turenne.—I have offered, in vain, to make experiments before a commission; they demand that I shall experiment upon myself. I refuse upon my dignity. I have no

desire to put myself at the disposition of M. RICORD, to satisfy his curiosity and to serve as the butt of his jokes. I demand that the question be treated scientifically, before a scientific assembly."

Thus the dispute went on, until the hour of adjournment. At a subsequent session, the fight was renewed. Finally, the fact that they had wandered entirely away from the topic of governmental management of syphilis, dawned upon their minds, and the subject was closed by appointing a commission to address the governments on the subject. The following gentlemen were named as the committee: Messieurs HEBRA, Vienna; SCITZ, Munich; CROCQ, Brussels; SECO BALDOR, Madrid; GAL-LIGO, Florence; PALASCIANO, Naples; OWRE, Christiana; BARBOSA, Lisbon; FRERICHs, Berlin; HUEBBENET, Kiew; FORDYCE BARKER, New York; WILSON JEWELL, Philadelphia; UPHAM, Boston; R. R. MACILVAINE, Cincinnati; HINGSTON, Montreal.

The facts brought out before the Congress on the subject of syphilization, may be briefly summed up as follows:

Prof. BOECK, of Sweden, treats secondary syphilis by numerous and long-repeated inoculations of the matter of soft chancre. The plan is this: Several inoculations are made at once upon the patient. When the sores are produced, another set is inoculated, and the first ones destroyed by caustic. Thus crop after crop of chancreoids is produced, through a period of several months. At length, after an average of about three hundred and forty-five inoculations, a tolerance is produced, and the patient is found incapable of having any more chancreoids. He is then pronounced "syphilized" and cured. During this long treatment, the secondary symptoms generally, or at least frequently, disappear.

Against this treatment, it is urged that some patients have been inoculated to complete insusceptibility to soft chancre, and yet have *failed* to be cured of their secondary symptoms; that thoroughly syphilized women have proved that they were not cured, by bearing syphilitic infants. As to the disappearance of secondary eruptions, it is urged that four months is a long

1867.]

Foreign Correspondence.

time, and that in such a period these eruptions often recede from view, spontaneously.

In a few instances, the most disastrous results, and even loss of life, have followed the treatment. The discussion showed that the opinion of the Congress was decidedly opposed to this practice.

A banquet was held at the Grand Hotel, by such of the members who chose to subscribe for the purpose. About 200 subscribed. The feast opened with great eclat, and good feeling. M. BOUILLAUD was in the chair. Several short, pithy addresses were read, an awkward way of delivery in dinner speeches, but, still, the time went merrily on. In the midst of the festivities, word was brought that the great surgeon VELPEAU had just died. This announcement cast a gloom over the assembly, which silenced its mirth and rendered the remainder of the evening a melancholy occasion.

VELPEAU'S death was rather sudden, as he had been on duty only a few days before, in the hospital. I went the rounds of his wards with him, and saw several of his operations. He was, however, very old, and really superannuated. He held on to his public position too long for his own reputation. His prescriptions and operations, however, were reasonably good, but his wards were the worst ventilated of any that I saw in Paris, and had a strong stench of foul air in every part of them.

At one of the evening sessions of the Congress, M. MILLIOT exhibited, upon a cat and a dog, a new method of physical diagnosis of tumors, etc., in the visceral cavities. His plan is to illuminate very powerfully the interior of the stomach, rectum, bladder, or vagina by electric light, and then to observe the translucency of the abdomen, on the same principle that we test the translucency of the scrotal tumor to diagnose hydrocele. For this purpose, he introduces into the stomach, rectum, etc., small glass tubes, containing an arrangement of platina wires connected with an electric apparatus. In this way, he produces a powerful interior electric light, which renders the abdomen translucent, like a hydrocele. He hopes to use it for

the diagnosis of ovarian cysts, but has not yet brought it to any practical usefulness.

At the close of the Congress, the venerable President pronounced a brief farewell address, and declared the sessions finally closed.

EDMUND ANDREWS.

LARYNGOSCOPY.

MR. EDITOR:—I have frequently been able to overcome the irritability of the throat, sometimes so troublesome in laryngoscopic examinations, by throwing upon the velum and posterior portions of the pharynx a spray of sulphuric ether, by means of Richardson's apparatus. The patient should take a full inspiration before commencing the operation, and the spray should be rapidly carried from point to point, so as not to produce congelation. This method is quicker, more convenient, and more efficacious than ice.

611 Wabash Avenue,
Chicago, Oct. 1, 1867. }

H. A. JOHNSON.

The Clinique.

BOWEL-AFFECTIONS OF CHILDREN.

Abstract of a Clinic by Prof. N. S. DAVIS, in Medical Wards of Mercy Hospital. September, 1867.

GENTLEMEN:—Here is an infant, about eight months old, laboring under one of the most common and fatal forms of disease that the practitioner is called upon to treat. And though the mother has brought it here unexpectedly, I shall make no apology for occupying your attention with the disease which it illustrates, during the present clinic hour.

You notice the child is pale, emaciated, restless, the eyes a little sunken, the line from the *alæ-nasi* to the angles of the

mouth depressed, making an expression of sadness; and if you examine more closely, you find the skin cool, particularly on the extremities; the pulse small and quick; the muscles flaccid, and the mother will tell you that about two weeks since the child was attacked with serous diarrhœa and vomiting. The latter ceased, or occurred only occasionally, after the first 24 hours, but the diarrhœa has continued to the present time. You will readily recognize the case as one of mild cholera infantum followed by simple diarrhœa; the discharges being thin, varying in color, sometimes green, other times yellow, and again ash-gray, and much of the time very offensive; while the urine is generally scanty. If these symptoms were suffered to continue two or three weeks longer, the child would be reduced to a skeleton; its eyes deeply sunken; its lips pale and thin; the skin in folds or wrinkles on its neck, thighs, and arms; with a feeble pulse, and often husky voice. In this condition, the functions of digestion and assimilation are often entirely suspended, and the patient soon reaches a stage of fatal exhaustion.

The bowel-affections met with in children, every summer, may be arranged into three groups. The first or simplest form of disease commences with mere looseness of the bowels, indicated by from two to six passages daily, more thin and copious than natural, and varying in color from ash-grey to light yellow. It is accompanied by vomiting only occasionally, when the stomach is made too full, and the child often continues cheerful and free from fever, though daily becoming more pale, thinner in flesh, and at times peevish. In this mild form, the disease may continue through the greater part of July and August without the occurrence of structural lesions, and gradually disappear in the early autumn, without any treatment whatever. Many other cases, however, either from a more active grade of irritation in the intestinal mucous membrane, or from a scrofulous constitutional taint, do not thus recover. On the contrary, they are found at the end of from eight to twelve weeks, pale, bloodless, emaciated to a skeleton, the pulse feeble, skin cool, abdomen tumid, appetite often voracious, and

bowels moderately loose and, generally, discharges very offensive, with appearances of undigested food. These symptoms indicate such a change in the mucous membrane of the ilium and the mesenteric glands, that the work of assimilation cannot be carried on, and hence most of such cases terminate fatally; though not, in some, until several months have elapsed.

The second class of cases commence more abruptly, with active vomiting and diarrhœa. Everything that is taken into the child's stomach is quickly rejected by vomiting, often accompanied by much retching; the intestinal discharges are frequent, copious, very thin, and generally of a green or yellow color. The eyes rapidly sink in the socket, the extremities become cool, the pulse small and frequent, with paroxysms of great restlessness. In the most severe cases, the little child becomes so rapidly exhausted that complete collapse and death, sometimes, occurs in from 24 to 48 hours. In cases of less severity, after the first 12 or 18 hours, the vomiting either ceases or becomes occasional only, the intestinal discharges less frequent and copious, and a slight febrile reaction takes place; from this time on, the child continues fretful, thirsty for cold drinks, and constantly troubled with indigestion. If it takes milk or other food, much of it either sours in the stomach and is often rejected by vomiting, or it is hurried through the intestines and appears in undigested curds and masses in the stools. The latter become very variable in color, consistence, and composition. In some cases, they continue very thin, green, or yellow, or ash-grey, and containing only slight indications of mucus and epithelium; in others, they are frothy and offensive; and in still others, they are small in quantity, consisting mostly of mucus mixed with undigested food, and variegated in color. Of course the child continues to emaciate, and often reaches a state of fatal exhaustion in from one to six weeks.

The third variety or group of cases met with in practice present dysenteric symptoms from the beginning.

They are feverish, restless, thirsty, with quick pulse, hot skin, irritable stomach, frequent small mucus discharges, sometimes mixed with blood, and accompanied by straining or tenes-

mus. The disease pursues the same general course as dysentery in the adult.

From these remarks, you will readily perceive that the bowel-affections of children vary much in their symptoms, their pathology, and their results. The essential pathological conditions in the first class of cases are, extreme morbid sensibility of the mucous membrane of the alimentary canal, and relaxation of the same tissue, or diminished tonicity of the capillaries. This causes increased secretion and sometimes effusion from the free surface of the mucous membrane, furnishing the increased discharges, while the function of absorption is, in the same ratio, impaired. Hence, much of the ingesta passes through mixed with the morbid secretions, instead of being appropriated as nourishment.

In the first stage of the second class of cases, the same pathological conditions of the mucous membranes exist, only in a more exaggerated degree. The morbid sensibility and relaxation are such, that the resulting effusion becomes rapid and copious, as indicated by the frequent and copious discharges both up and down. This rapid effusion not only reduces the relative proportion of serous or watery element of the blood, but it also disturbs and detaches more or less of the epithelial covering of the mucous membrane. If the patient does not pass into collapse and death at this stage, congestion takes place in the denuded patches of membrane, and a low grade of inflammatory action follows, with some general febrile reaction, constituting the second stage of the attack. If not controlled, the inflammation thus begun will persist, in many cases, until ulceration and emaciation reach an extent fatal to the little sufferer.

Pathologically, the third group of cases do not differ from cases of ilio-colitis and recto-colitis, in adults. In regard to the causes of these different grades of bowel-affections, a few words are necessary.

Gentlemen, in nine cases out of ten you will be told by the mother or nurse, that the child is *teething*; and, I am sorry to add, that the same thing will be alleged by a large portion of

the profession, as though the simple growth of the child's teeth, and especially their exit through the gums, was a sufficient cause of all these cases. So fixed is this notion in the minds of the people, that thousands of infants are sacrificed every year needlessly, especially among the poorer classes of society. The mother will present you her child for the first time, already emaciated to a skeleton; its eyes deeply sunken; lips thin, pale, and retracted; the skin hanging in folds around its arms and legs; the pulse feeble; the bowels moving from ten to twenty times a-day; with entire suspension of digestion and assimilation.

You ask how long the child has been sick; the mother will answer generally, "three or four weeks, but not to say right sick until the last few days." You ask her what she has been doing for the child all that long time, and she will say, "nothing, except two or three times a dose of castor-oil." You ask why she neglected the child so long, until it is, perhaps, past recovery, and she will reply promptly, "oh! it was *teething*, and she did not think the disturbance of the stomach would signify anything."

Now, it is just this idea of the effects of teething that cause not less than 300 infants to die from neglecting these bowel-affections, in Chicago alone, every summer. And, yet, nothing is more certain, than that the growth of the teeth exerts no influence whatever, as a cause of these affections in children; as the following facts will show:

1st. The attacks occur at all periods of age, from birth to two or two and a-half years: that is, before the growth of the teeth has made the slightest impression upon the gums, and after all are through that will be for some years.

2d. When an attack has commenced, neither the spontaneous exit of one or more teeth through the gum, nor the incision of the gum, affords any perceptible relief to the intestinal symptoms.

I must caution you against one source of error here. It often happens, that one of these little children is presented to the physician, who carefully examines and scarifies the gums,

and, at the same time, prescribes some appropriate medicine to allay the intestinal irritation. The child takes the medicine, becomes better, and, of course, the cutting of the gums is credited with the greater part of the resulting benefit, while, in reality, it exerted no influence whatever.

3d. I have carefully examined the mouths of several hundred infants in the first stage of bowel-affections, and have not found either redness, heat, tenderness, or any other sign of irritation in the gums, in five per cent of the whole number.

But, gentlemen, you will be told, with great emphasis, that "it must be the teeth, for the child is constantly putting its fingers in its mouth, and is biting on everything it can get hold of." Those who make this assertion so gravely forget that the child had been doing precisely the same thing ever since the hour of its birth; and that the act was one of the best evidences that the mouth and gums were free from soreness or morbid sensibility. No child will be found cramming its fingers into a sore mouth, or willingly biting upon a tender or sensitive gum.

4th. The well-known fact, that the diseases in question are restricted in their prevalence to certain geographical limits, and to certain seasons of the year, totally disprove the agency of teething as an efficient cause. Of course, children "cut their teeth" as much in one country as another—as much in January as in July. In this city, for instance, there were the same ratio of children "cutting their teeth" in January last, as in the July following. Yet, in the first month named, there were scarcely more than ten deaths from bowel-complaints in young children, while in the last named month there were near three hundred.

This brings us to the real causes of these affections, namely: high temperature, with impure air, in such localities as give a wide range of temperature between the extremes of winter and summer. In all the populous cities, and in most of the malarious country districts, in what is called the temperate zone of this continent, the first six or seven consecutive days of hot, sultry weather, occurring at the commencement of each sum-

mer, always starts the prevalence of diarrhoea and cholera-morbus among the young children. The coincidence between the high atmospheric temperature and the prevalence of bowel-complaints is so constant, from the beginning to the end of the summer, that no careful observer will doubt their relation, as *cause* and *effect*. To develope a severe prevalence of this class of diseases, the high temperature must act conjointly with such atmospheric impurities as are found in all large cities and in some malarious districts.

Treatment.—The principles that have guided us in the treatment of the various forms of intestinal disease in children, are easily inferred from the explanations already given, concerning their pathology. In the first stage of the two first varieties described, the indications are, to allay the morbid excitability of the mucous membrane, and to restore the proper tone or contractility to its capillary and secretory structures. At a later stage, when, from the continued drain of excessive intestinal discharges the excretory functions, especially those of the skin and kidneys, are greatly impaired or even wholly suppressed, a third indication is, to add such remedies as will aid in restoring both assimilation and secretion. In the simplest form of intestinal disease, as represented in the first class or group of cases described, the union of a simple anodyne and tonic; the one to allay the morbid excitability, and the other to improve the tonicity; fulfils the whole therapeutic indication in the early stage. A formula that I have used with much satisfaction for many years, consists of:

R.	Aromat. Sulph. Acid, -----	ʒij.
	Sulph. Magnesia, -----	ʒij.
	Tinct. Opii, -----	ʒij.
	Simple Syrup, -----	
	Mint Water, -----	āā ʒj.

Mix.

Of this, I give, to a child six months old, 10 or 12 drops in a teaspoonful of sweetened water, every three, four, six, or eight hours, according to the frequency of the discharges, and continue their use until the discharges are reduced to one a-day,

and natural in appearance. If it should happen that the discharges cease altogether for twenty-four or even thirty-six hours, do not immediately administer a cathartic, and thereby undo all you have accomplished, but simply suspend the use of the restraining medicine, and wait until the bowels are moved spontaneously. If, when this takes place, the discharge is more natural and without a tendency to frequent repetition, the further use of the drops may be restricted to one dose at night, or night and morning.

It was this prescription that I directed for the little child before you, when it was first brought to me, three days since. Its discharges are already much less frequent and more healthy, and we shall continue the remedy with the confident expectation that its recovery will be complete in three or four days more. Another formula, which I frequently use for the same purpose, is as follows:

R. Sub. Nit. Bismuth,-----	30 grs.
Pulv. Opii, -----	2 grs.
White Sugar, -----	40 grs.

Mix. Divide into 15 powders, of which one may be given to a child one year old, every three, four, or six hours, until the discharges are reduced to their normal frequency.

Whether this or the preceding formula is used, you should inquire carefully concerning the urinary secretion, and if it is in any degree scanty, a few drops of nitrous ether should be given between each of the doses of other medicine. When these cases of simple summer diarrhoea have already become chronic, with much emaciation and debility, I have often obtained the most favorable results from the use of the following:

R. Erigeron Canadensis, -----	℥ss.
Tannate of Quinine,-----	20 grs.
Sulph. Morph.,-----	1 gr.

Mix. Pour on it half a pint of boiling water, stir it up well while hot. When cold, give of this infusion, to a child one year old, a teaspoonful every three, four, or six hours, according to the frequency of the discharges.

In the more severe class of cases, such as described in the second group, constituting cholera infantum proper, if called while the vomiting and purging are still active, I generally make two prescriptions, as follows:

R. Bicarb. Soda,----- ʒj.
 Sulph. Morph.,----- 1 gr.
 Aqua Menth.,----- ʒij.

Mix, and give, to a child one year old, 10 drops in a teaspoonful of sweetened water, *immediately* after every turn of vomiting; and,

R. Hydrarg. Chlorid. Mite,----- 4 grs.
 Pulv. Opii,----- 1 gr.
 Sacchar. Alba,----- 20 grs.

Mix. Divide into 8 powders, and give one every three or four hours, until the discharges cease.

After the active vomiting and purging are once checked, if the discharges from the bowels continue too frequent and thin, the subsequent treatment may be the same as already detailed for simple diarrhœa. But if the active stage gives place to a degree of febrile reaction accompanied by small mucous discharges, whether mixed with blood or not, then the following formula becomes far more efficient than any other that we have used:

R. Ol. Terebinth.,----- ʒij.
 Tinct. Opii,----- ʒij.
 Pulv. G. Arabic,-----
 White Sugar,-----aa ʒiij.
 Rub together and add,
 Mint Water,----- ʒij.

Mix, and give, to a child 12 or 15 months old, 15 drops every three or four hours, until the discharges are checked, and then continue at longer intervals, until they become natural.

The third class of cases were represented to be dysenteric from the beginning, and, hence, they must be treated as such. But the clinic hour has already expired, and you must be dismissed for the present.

Proceedings of Societies.

MORGAN COUNTY MEDICAL SOCIETY.

The Society met, pursuant to adjournment, at 2 o'clock P.M., at the Court House, in Jacksonville, August 8, 1867.

The President and Secretary both being absent, the meeting came to order, and was organized with Dr. Long in the chair. Dr. Craig, of Arcadia, was elected Secretary *pro tem*.

The minutes of the last meeting, as published in the *Jacksonville Journal*, were read and approved.

Drs. DeLeuw, of Jacksonville, and Edgar, of Arcadia, essayists of the day, being present, the regular order of business was taken up.

Dr. DeLeuw read an interesting paper on "Milk and Artificial Nursing." The subject being open for discussion, remarks were offered by Drs. W. S. Edgar, Prince, Lucas, Fisher, and Reed.

Dr. Edgar remarked that he thought the Doctor had made a happy choice in the selection of his theme; suggesting that practical every-day subjects were always to be preferred to mere abstract principles and theories, and as this was eminently practical, he hoped it would elicit a thorough discussion from those present.

Dr. Prince thought that the reduction of cows' milk to the constituency of that of the mothers was unnecessary—thought a millenium would scarcely ever come when there would not still be a large infant mortality; that the children of poor parents in large cities should be removed into the country, at public expense, if necessary, in order to prolong their existence by furnishing pure air, water, and better food.

Dr. Fisher remarked that his experience taught him that nearly pure cow's milk, when necessary, was the best artificial food for infants.

The generally expressed opinion of the Society was to the

effect that the practice of diluting cow's milk for artificial nursing, so greatly as heretofore, was erroneous.

Dr. DeLeuw thought he had noticed scrofula as a result of too free exhibition of pure cow's milk to young infants.

Dr. Edgar observed that no rule could be strictly adopted, that each case must be separately considered, and that the rules, regulations, and statistics of the large foundling hospitals would prove highly interesting and instructive on this point.

The President, Dr. Henry Jones, of Jacksonville, with several other gentlemen of the Society, arrived.

By request, the paper of Dr. DeLeuw was re-read by the Secretary.

There being no further discussion upon the subject introduced by Dr. DeLeuw, the Society was entertained by an interesting paper read by Dr. Chas. A. Edgar, of Arcadia. The subject, cholera infantum, being one of special interest during the hot season, when such diseases are prevailing, drew forth remarks at length, from the President, and from Drs. Prince, Reed, and W. S. Edgar.

Dr. Jones endorsed and highly recommended the practice mentioned in the work of Dr. Dewees, as first put in vogue by Dr. Miller, of New York, *viz.*, one-sixth to one-fourth of a grain of the mild chloride of mercury, every hour for twelve to sixteen hours, as applicable to the acute stage, which is the stage when the treatment is most effective.

Dr. Prince, in the main, endorsed the practice referred to by Dr. Jones, and objects to the anodyne treatment in the acute stage of cholera infantum—thought that an improvement resulted from a more frequent exhibition of the mercurial in still smaller doses. He depended upon it not so much for its action on the liver as for its influence on the mucous coat of the stomach and intestinal tube. His principal objection to opiates was, that they locked up the secretions, and prevented the discharge of those principles from the blood which it is most desirable to get rid of.

In answer to a question, Dr. Prince remarked that he never observed any symptoms of cerebral disturbance following the use of the Miller treatment in acute cholera infantum.

Dr. Reed approved of the remedy, in so far as the smallness of the dose was concerned, and thought that a still greater reduction of the dose would be attended with good results; but would recommend instead, the use of camphora in small doses, frequently repeated.

Dr. Edgar, of Jacksonville, attested to the efficacy of the Miller treatment, remarking that calomel is not absorbed as calomel; that when given in small doses, it is more readily absorbed, thus producing its effect with more satisfactory results. He had obtained benefit from one-twelfth of a grain, but had failed to observe any appreciable benefit from smaller doses; that the greenish evacuations following the use of sub-muriate may or may not always be bile, and that the treatment would sometimes fail. He had noticed a wide difference between cholera infantum in the city and in the country; that in the country there was a greater tendency to intermittents than in the city, where the disease generally commenced with vomiting as the result of indigestion, and was attended by a low grade of typhoid fever. The doctor insisted that the use of the syringe was too much neglected; that many children had been saved by thus timely administering medicines and nourishment when articles of all kinds would be rejected from the stomach. He suggested that grated ice and ice water, in cases of excessive vomiting, were very comforting agents, and advised all young practitioners to avoid leeching and blistering, as they were not only troublesome, but often dangerous from exhaustive ulceration; finally, not to look at every case of diarrhoea among infants during the summer as cholera infantum, but to remove any cause of irritation, and rather, by timely treatment, prevent the malady.

The discussion on the subjects being over, a vote of thanks was tendered Drs. DeLeuw and Edgar for the very interesting articles furnished by them.

The President made remarks on the use of the nasal douche. "A word to the wise," etc. Also, referred to the action of tartarized antimony in certain cases of uterine inertia, claiming that it not only produces relaxation of the system generally,

but positive contraction of the uterus, and related an interesting case of obstetrics, in point of theory, in which it seemed to demonstrate its power as a contracting agent.

Dr. Edgar observed that he did not see that the tartar emetic, administered as recommended, in any way hindered the operations of nature; that, whereas, it was a relaxant, he was not prepared to deny that it *might* act as a uterine stimulant. Yet he did not see but that the seeming stimulant effect was, after all, the result of nature unassisted.

The acting Secretary next read his quarterly report as Treasurer of the Society, which was, on motion, received and approved.

Dr. Baker, of Alexander Station, was unanimously elected a member of the Society.

Drs. W. S. Edgar and C. Fisher were appointed to prepare essays for the next meeting.

The Society then adjourned to meet, as usual, at 2 o'clock P.M., on the second Thursday (12th) of September.

JNO. W. CRAIG, M.D.,

Secretary pro tem.

THE SOCIETY met at the Court House, in Jacksonville, on Thursday, September 12, at 2 o'clock P.M.

The proceedings of the last meeting, as printed in the *Jacksonville Journal*, were read and approved.

Dr. Prince reported a case of epithelioma. The patient had been afflicted with occasional attacks of colic for a year, and during his last sickness was confined to his bed several months, suffering severe pain, the disease finally resulting in death. A *post mortem* examination revealed the fact that the ascending and right half of the transverse colon were very much distended, and the transverse colon was constricted at the median line by an induration of the natural tissue at the base of an epithelial tumor growing upon the interior of the intestine.

Dr. Long remarked that the patient's mother and one brother had died of obscure abdominal affections, and suggested the probability of a family predisposition to the same difficulty.

Dr. Edgar said that the patient had called his attention, within a year or two, to a tumor on the crown of the head, as large as a hickory nut—and several years ago, a lupus had been removed from his face. He thought a cancerous diathesis was clearly indicated in this case.

Owing to the intense pain which was observed, and to the absence of any signs of a tumor, the difficulty had been diagnosed as of a neuralgic character at first, and treated with quinine and iron, which really seemed to benefit the patient for a time.

Dr. Edgar thought that we should not be too easily led to jump to the conclusion of a nervous difficulty when the symptoms seem to indicate a grave organic derangement. The doctor also dwelt upon the importance of keeping a careful record of each case a physician might have—recording faithfully and accurately the various symptoms of obscure diseases, that friends and the profession might be benefited thereby.

The regularly appointed essayists, Drs. Edgar and Fisher, being unprepared, they were allowed still further time, and will be expected to furnish papers for the next meeting.

Dr. Edgar then introduced the subject of tracheotomy in croup, by relating an incident of three German physicians, who, after this operation, attempted to remove a clot of blood from the trachea by applying the lips to the opening, and who contracted the disease and died a short time after.

The President, Dr. Henry Jones, thought the disease must have been diphtheritic croup, as he had never heard or read of any evidence of the contagiousness of croup.

Dr. Prince remarked that he had performed six operations of tracheotomy for croup in children. Three were benefited temporarily, but died by the development of a similar disease in the chest. Had never operated in a case where the contagious or spreading element did not exist. If we could limit the spread of the inflammation, the operation would be successful, but the power or ability to limit this spreading element would also obviate the necessity for an operation. He thought that the best means of limiting this spreading would be an applica-

tion of a strong solution of nitrate of silver to the parts by the atomizing tube.

Dr. Craig remarked that he had used tinct. muriate of iron diluted, in the form of spray.

Dr. Bibb had used a solution of nitrate of silver, in spray, with great relief in one case of croup.

Dr. DeLeuw recommended tincture of iron as an application.

Dr. Long was accustomed to using nitrate of silver.

Dr. H. K. Jones considered tracheotomy merely a mechanical means of affording relief as a last resort. Was in the habit of using in croup, calomel, tartar emetic, and ipecac, as remedies. In diphtheria, I rely upon the sesquichloride of iron. Rarely make local applications. When a pathological condition of the system exists, treat this condition and your local symptoms disappear. Consider that the severity of local disease more often depends upon some depravity of the system.

Dr. Edgar thought but little danger necessarily resulted from the operation itself, as very severe injuries were suffered in this region without producing death. He knew of a case, where not only the trachea was opened transversely, but the œsophagus also, to that extent that food passed out, and yet the patient recovered. Regarded local applications as often very beneficial. Erysipelas was often treated successfully by local means alone, without resorting to constitutional remedies.

Dr. Fisher believed in local applications in croup—though he had not used it, he looked upon the atomizing tube as a very sensible way of applying local remedies in this formidable disease. He considered diphtheria a constitutional disease, and relied upon quinine and chlorate of potash as remedies in its treatment.

Dr. Wilbur seemed to think that it was very difficult to draw the line between croup and diphtheria.

Dr. Henry Jones thought that simple croup was not contagious. Did not see any difficulty in distinguishing croup from diphtheria, as in the latter disease the throat symptoms preceded the anginous affections. Remedies should be adapted to both local and constitutional states of the system. In great

emergencies, the doctor regarded the operation of tracheotomy as certainly proper, as the physician gets time for action. Croup is, originally, a local affection. I regard local applications in idiopathic erysipelas as sometimes beneficial. After the operation of tracheotomy, the treatment should aim to prevent the spread of the disease. In the sore throat of scarlet fever, by a sort of contagion, sometimes whole families will suffer from throat difficulties.

Dr. H. K. Jones did not question the expediency of tracheotomy as a means of relief. Though it sometimes gave temporary relief, the disease usually progressed and terminated fatally. Thought the best remedies were those which attacked the constitutional condition of the system which this progression proceeded from.

At 5 o'clock P.M., adjourned, to meet the second Thursday in October.

C. T. WILBUR, M.D., *Secretary.*

Selections.

LOCOMOTOR ATAXIA.

(Translated, from the German of Althaus in the *Deutsches Klink*, 1866, for the *Quarterly Journal of Psychological Medicine and Medical Jurisprudence*.)

We may adopt, with Duchenne, three stages of this disease. The first lasts from four to five years, and is characterized by troubles of the cranial nerves, by peculiar pains, and a decrease of the generative power. The second stage lasts ten years or more, and is signalized by the appearance of ataxia and decreasing sensibility. To these symptoms is to be added paralysis in the third stage, and death ensues by exhaustion or some intercurrent disease. The affection is from the beginning either chronic or subacute. The cranial nerves are first attacked, i.e., the optic, the *motores oculorum*, trochlearis, the abducentes, (amblyopia, diplopia, strabismus, ptosis). The ophthalmoscope ascertains the symptoms of congestion (expansion of the capillary vessels and violet coloring of the membrane) and afterwards (in amaurosis) an atrophy of the retina. As to its prog-

nosis, it is to be remarked that strabismus or diplopia may disappear even without treatment, while ptosis or amblyopia will not. The pains of such patients are described as jerking, suddenly appearing and disappearing. They are generally located in the lower extremities, and are paroxysmal. If the pain occurs in the bladder, a vesicular catarrh will soon supervene. These pains diminish in spring, but increase after fatiguing walks, and especially after venereal and alcoholic excesses. An important, but not constant symptom, is spermatorrhœa, first with, and afterwards without erections; exceptionally, priapismus and satyriasis will occur. There is sometimes, in the second stage, besides strangury, incontinence of urine and inability to retain the feces, and symptoms of ataxia, appear on a sudden or by degrees. The still vigorous muscles react no longer normally upon the emotional impulse, the equilibrium is lost, complicated motions can no longer be effected. There are two coördinate kinds of muscular activity, *viz.*: the harmony between the antagonists, and the instinctive, or emotional muscular actions. In the latter the antagonists do not remain inactive, but every intended motion results from a twofold nervous action, so that one group of muscles produces a motion, while another moderates it. In progressive ataxia, the capacity for controlling the muscular actions is lost first, although every single muscle may still be contracted, and though even certain associated motions may succeed. Separate muscular contractions, however, do not occur in a normal condition; most of the muscular actions require a great number of simultaneous muscular contractions to which we accustomed ourselves from childhood, and every child suffers, as it were, by ataxia, without being aware of it. Now these associated muscular actions take place in adults instinctively without any special emotional impulse, and if this capacity is gone, we have a case of ataxia before us. It begins mostly in the lower extremities, the gait of the patient becomes faltering (as with many inebriates) and this infirmity is constantly on the increase; if you cause the patient to stand on his feet joined closely together, he begins to sway to and fro, particularly when his eyes are closed. Still this swaying does not in every case indicate ataxia, since it also occurs in different diseases of the brain, with feeble, very anemic persons and infirm convalescents. These symptoms increase by walking, especially when the patient wishes to turn around, in which case the feet are tossed to and fro without purpose, and become useless. Irregular muscular contractions will also take place.

The patient is, while lying down, able to stretch and bend his feet, but he does so suddenly by fits and starts, and can no longer calculate the strength required. The differences from paralysis are obvious: sometimes there is weakness of motion connected with a sensible use of it, sometimes there is sufficient, or even abundant strength, without any power of using it to some definite purpose. These symptoms are far less marked in the upper extremities, the muscles of which may be tested by causing the patient to touch his nose or to make the sign of a cross while he keeps his eyes shut. Sensibility appears disturbed, the feet seem benumbed and heavy, with or without loss of the cutaneous sensibility, this loss manifesting itself in the soles and passing over to the chest, stomach, and the ulnar side of the upper extremities. In ataxia the soles and legs are almost constantly benumbed; this not being so, renders a diagnosis of ataxia doubtful. The decrease of this abnormal feeling indicates improvement. Anæsthesia occurs frequently, but only at a late period and not constantly, but the sensibility of touch never becomes extinct (analgesia, anodynia). The sense of touch is frequently everywhere diminished, and the patient needs often several minutes before he perceives the impression of touch; the reflex movements are, therefore, defective or entirely wanting. The influence of temperature is seldom impaired, but the patient may become unconscious of it, for it is known that patients, supposing they were going to take a tepid bath, have been scalded. The ability of distinguishing weight, too, is diminished, for such as suffer by ataxia cannot, like healthy persons, discriminate between a weight of 29lbs. in one hand and 30lbs. in the other. As this ability may, in the soles of the feet, be diminished, so that the gait becomes faltering, the diminution or absence of this ability has likewise been considered the cause of the faltering gait of persons attacked by ataxia. All the symptoms mentioned above, increase in the last stage of this disease, while the muscular power decreases; the muscles become atrophied, convulsions take place, amamosis, palsy of the bladder, or some intercurrent disease put an end to the sufferings of the patient. It is a singular fact that the disposition of mind of such patients is quite cheerful, notwithstanding all their sufferings.

Regarding the *causes* of this disease we observe, that the greater part of the patients were from thirty to fifty years old, and that this disease affects more men than women. Hardship, cold, and dampness are rightly considered to produce it. The suffering is almost constantly aggravated in autumn and winter:

if there is an improvement in this period, it may properly be attributed to the treatment of the disease. It is not yet ascertained, whether venereal excesses are connected with the origin of this disease, they are at any rate not its principal cause, as was formerly thought to be the case. Over exertion and nervous diseases of the parents are certainly additional causes.

The *diagnosis*, doubtful in the first stage, becomes very easy in the second, even if all symptoms other than ataxia of the muscles are wanting; in the third stage ataxia does no longer exist by itself, as the degeneration of the spinal marrow extends already to the spinal arteries. Ataxia *might be mistaken for*: 1. *myelitis*, in which, however, palsies may occur, but not ataxia; there is no sympathetic affection of the cranial nerves, but pain in the back, spasms and muscular atrophy occur. 2. *Diseases of the cerebellum*, in which a condition similar to ataxia may appear, although the inclination to running forward or backward is more frequently noticed. Important distinctive symptoms are the fixed pain in the occiput, vomiting, a more indolent affection of the cranial nerves, convulsions and the epileptoid symptoms, all of which are absent in ataxia. 3. *Softening of the brain*, in which, however, hemiplegia, loss of memory and mind take place. 4. *Chronic poisoning by alcohol, lead and mercury* as well as syphilitic affections of the brain, in which diseases we must use anamnestic medicines and apply a treatment *ex juvantibus et nocentibus*. 5. *Palsy of the muscular sense*, a symptom common to different affections; but here the patient is completely palsied, as soon as the eye (representing the muscular sense) does not act any longer; as soon as the patient shuts his eyes or is in the dark, he is palsied; the muscular power is retained, as in ataxia, but the patient can effect motion only in daylight and with open eyes.

Prognosis. *Romberg's* despairing warning against any therapeutics as merely aggravating the disease, has been repudiated by experience. Even in advanced cases the sufferings of the patients may still be considerably alleviated. Intercurrent diseases impair the prognosis. Two facts encourage the physician to therapeutic interference: first, that the symptoms affecting the cranial nerves (excepting the optic) disappear in time, so that there exists a functional stage of the disease, before the physical changes in the spinal marrow occur, in which stage medicines may accomplish much; second, that Charcot and Vulpian found, in a case of ataxia, some nerve fibres in the spinal marrow which were evidently in a stage of regeneration.

Treatment. If the patient is feeble, declining anemic, pre-

scribe, besides nutritious food, iron, quinine, cod-liver oil, and milk, which latter Hippocrates has recommended for erotic tabes. If great exertions have preceded, rest is imperatively required. Counter-irritants applied to the back must be wholly avoided, but the constant electric fluid may be passed along the vertebral column. Iodine should not be employed, but iodide of potassium and iron may be used, although they may not cure the disease. Baths may be recommended, but ataxic persons should not travel a great distance for them, but rather drink mineral water and take sulphuretted baths at home. Faradization is of no use, galvanization avails against some symptoms without curing the disease. The most reliable of all curative agents is still the arg. nitricum given at the rate of $\frac{1}{10}$ - $\frac{1}{2}$ gr. two or three times a day, which may be administered in connection with phosphate of lime (10-20 gr. pro die). This medicine may in such a dose be given without danger, especially if you discontinue it for a fortnight after every four weeks and give a purgative instead. I pay close attention to the condition of the gums. We must, in general, take care not to treat this disease according to one rule, but sharply individualize, as in all other diseases.

Book Notices.

The Physiology of Man. Designed to represent the existing state of Physiological Science, as applied to the Functions of the Human Body. By AUSTIN FLINT, JR., M.D., Professor of Physiology and Microscopy in the Bellevue Hospital Medical College, and in the Long Island College Hospital; Fellow of the New York Academy of Medicine, etc., etc. Alimentation; Digestion; Absorption; Lymph; and Chyle. New York: D. APPLETON & Co. 1867.

This volume constitutes the second of a series, and, like the first, is published in superior style. It contains 556 pages, and affords the reader a very full and instructive review of the state of knowledge concerning the great functions of Alimentation, Digestion, Absorption, Lymph, and Chyle. The first volume related to the Blood, Circulation, and Respiration. Each volume is complete in itself, and supplied with a copious index.

The author is performing a work of real merit, and should be encouraged by the liberal patronage of the profession. The present volume can be found at S. C. GRIGGS & Co., 41 Lake Street. Price \$4.50

Medical Uses of Electricity, with special reference to General Electrization as a Tonic in Neuralgia, Rheumatism, Dyspepsia, Chorea, Paralysis, and other affections associated with general debility. With illustrative cases. By GEO. M. BEARD, M.D., and A. D. ROCKWELL, M.D. New York: WM. WOOD & Co., 61 Walker Street. 1867.

This is a very neatly printed and bound duodecimo volume of 65 pages. The principal part of the matter was originally contained in a series of articles published in the *New York Medical Record*; but both authors and publishers have conferred a favor on the profession by giving it a more permanent and generally accessible form. The chief object of the authors is, to illustrate the *superior efficacy of general electrization* over the more common practice of applying it locally. Practitioners will find this little monograph worthy of a careful perusal.

Price.—Full-bound, \$1.00; in paper, \$0.75.

Is It I? A Book for Every Man. A Companion to Why Not? By HORATIO ROBINSON STORER, M.D., of Boston, Vice-President of the American Medical Association. Boston: LEE & SHEPARD. 1867.

This is a duodecimo volume of 154 pages. The subjects treated of are:

1. It is not good to be alone.
2. Marriage as a Sanitary Measure.
3. How early in life is marriage to be advised?
4. The Rights of the Husband.
5. Are these Rights Absolute, or Reciprocal with Duties?
6. Should mere Instinct, or Reason, be the rule?
7. Arguments and Counter-Arguments as to Divorce.
8. A Plea for Woman.

These important topics are discussed by the author, in such

a manner as to interest and profit the reader. Without sanctioning a certain vein of exaggeration, or *sensationalism*, which is perceptible in the author's style, we earnestly commend the work for general perusal. Its main object is to inculcate more correct views in relation to the effects of sexual intercourse, and to point out more clearly the proper relations between husband and wife, with a view to restraining the excesses of the former. Aside from the use of intoxicating drinks, there are probably no evils productive of more social misery than the abuse of the sexual propensities, both in the married and unmarried. Dr. Storer's little work can be found in all our bookstores.

Transactions of the American Medical Association, Vol XVIII.

Philadelphia: Printed for the Association, by COLLINS, 705 Jayne Street. 1867. Price \$5.00

This, like the preceding volumes, is published in excellent style, and contains 551 pages. We have not time or space, at present, to enumerate the reports and papers it contains. We assure our readers, however, that they are worth more than the cost of the volume.

Editorial.

PROSTITUTION AND SYPHILIS.—In the October number of the EXAMINER we published a letter from Prof. E. ANDREWS, containing the most complete and reliable statistical information concerning these important topics, that we have seen from any source. As the attentive reader will have seen, those facts show conclusively that the attempts perseveringly made in Europe, to limit the spread of syphilis by subjecting prostitutes to legal licenses and inspections, are unqualified failures. And the same results will follow all future laws of the same character, whether in Europe or America, so long as they apply only to *female* prostitutes. Of what avail is it to subject the female

to an examination once a-week, while, from the very nature of the case, she may have a poisonous chancre developed the next day after she has received her certificate of health, and inoculate every one with whom she has connexion during the whole week? Of what avail is it to send the diseased female to a prison hospital for cure, while the *male* libertine is allowed to stalk abroad unmolested, his genitals reeking with disease, ready to inoculate the female again the first night after her liberation from the hospital?

When such laws can be enacted, and *rigidly enforced*, as will compel, not only every female, but every male also, proposing to engage in illicit sexual intercourse, to submit to the same registration and inspection, and the same hospital discipline, then some progress may be made in limiting the spread of disease. When a just public sentiment will as rigidly exclude, from all respectable society, every *man*, whether old or young, rich or poor, who is known to indulge in illicit sexual intercourse, as the present public sentiment does the female, then there will be little necessity for statute laws on the subject.

INTERNATIONAL CONGRESS.—In the present number of the EXAMINER will be found two letters from Prof. ANDREWS, giving a very interesting account of the doings of the recent International Congress in Paris. From the tenor of all the correspondence we have seen, it is evident that a large proportion of those who attended were disappointed at the character of the proceedings.

THE LECTURE SEASON.—The two medical schools in this city are again in active operation, with good classes in attendance on both. The Rush Medical College Faculty made a formal opening and dedication of their new building on the evening of October 2d. The President, Prof. BLANEY, gave a history of the college. Mayor RICE made a congratulatory speech, in which he unwittingly hit the Faculty a blow directly on the head, by congratulating the audience that the capacious new building was the result of "*no joint-stock enterprise.*" And

Prof. GUNN delivered the regular introductory lecture. Making due allowance for the puffing and blowing about the "largest and best college building in the world," we believe the exercises were satisfactory to all parties. We understand that the number of students in attendance is nearly the same as last year. We fear it will not take many years to satisfy those who boast so much about the "largest and best college building in the world," that something besides brick and mortar is required to constitute a good school of medicine; and that the magnificent spectacle of 200 or 250 students in lecture-rooms with capacity for 600 or 700, will hardly offset the annual drain occasioned by the interest on \$70,000 of indebtedness.

The Chicago Medical College, in its neat and admirably arranged, though unpretentious, building, free from pecuniary incumbrances, held its opening exercises on the evening of Oct. 7th. After prayer by the chaplain, and some remarks on the peculiarities of the college organization, by the President of the Faculty, the introductory lecture was delivered by Prof. NELSON. The hall was filled with a good audience, and the lecture was highly appropriate to the occasion. The number of students in attendance is greater than at the commencement of any previous collegiate year. The clinical courses in the several hospitals are also well attended by students eager for observation and instruction directly at the bedside of the patient.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES.—The October number of this old Quarterly is promptly on our table. We need hardly remind our readers that this is one of the best medical periodicals in this or any other country.

THE MEDICAL GAZETTE.—This is the title of a new weekly journal, published by A. SIMPSON & Co.; New York, and edited by L. M. YALE, M.D. It is a regular medical newspaper, issued every Saturday. Price, \$2.00 per annum.

L'EVENEMENT MEDICAL.—This is the title of a new weekly medical journal, published in Paris, and edited by Professor PIRRY. It is issued in ordinary newspaper form, every Saturday, at 5 francs per annum.

A NEW PROCESS FOR PREPARING ANATOMICAL SPECIMENS.—Dr. Brunetti, of Padua, who received a gold medal at the Paris Exposition, has generously communicated to the international Medical Congress the following particulars of his valuable invention. The process comprises four several operations, viz., 1, the washing of the piece to be preserved; 2, the *degraisage*, or eating away of the fatty matter; 3, the tanning; and 4, the desiccation.

1. To wash the piece, M. Brunetti passes a current of pure water through the bloodvessels and the various excretory canals, and then he washes the water out by a current of alcohol.

2. For destroying the fat, he follows the alcohol with ether, which he pushes, of course, through the same bloodvessels and excretory ducts; this part of the operation lasts some hours. The ether penetrates the interstices of the flesh, and dissolves all the fat. The piece, at this point of the process, may be preserved any length of time desired, plunging in ether, before proceeding to the final operations.

3. For the tanning process, M. Brunetti dissolves tannin in boiling distilled water, and then, after washing the ether out of the vessels with distilled water, he throws this solution in.

4. For the drying process, M. Brunetti places the pieces in a vase with a double bottom, filled with boiling water, and he fills the places of the preceding liquids with warm, dry air. By the aid of a reservoir, in which air is compressed to about two atmospheres, and which communicates by a stop-cock and a system of tubes, first to a vase containing chloride of calcium, then with another heated, then with the vessels and excretory ducts of the anatomical piece in course of preparation, he establishes a gaseous current which expels, in a very little time, all the fluids. The operation is now finished.

The piece remains supple, light, preserves its size, its normal relations, its solid elements, for there are no longer any fluids in it. It may be handled without fear, and will last indefinitely. The discovery is a magnificent one, and the sooner medical schools are provided with full cabinets of natural and pathological pieces the better.—*Medical and Surgical Reporter*.

LIEBIG'S ARTIFICIAL MILK is in imitation, as close as chemistry can make, of the natural food of the human infant. It is prepared as follows: Half an ounce of wheat flour is boiled to a paste in five ounces of skimmed milk. To this is added immediately a mixture of one-half ounce of bruised malt, one

ounce of water, and three grammes of a solution of two parts of bicarbonate of potassa in eleven parts of water. The whole is then kept warm by standing within an envelope of tepid water until it is no longer pastry, but of a creamy consistence. After fifteen or twenty minutes it is put on a fire for a few seconds only, and then strained through a fine hair sieve. It should be allowed to stand long enough to deposit some fibrous matter before it is given to the child or invalid.—*Phil. Med. Reporter.*

HEAT AS A RESUSCITATING AGENT.—Dr. J. G. Richardson, in the *Am. Jour.*, urges from his observation and experiments the importance of direct Heat as an agent in the restoration of still-born infants, in cases of asphyxia from drowning, hanging, or the inhalation of noxious gases, especially the vapor of chloroform. He advises not merely *warming* the surface but artificially warming the blood within the limbs of persons apparently dead, and then propelling by frictions towards the heart as rapidly as possible. The heart's pulsations in many instances really take place, feebly, for a considerable time after being undiscoverable by external observation. The heat should approximate *roasting* as nearly as may be without positive destruction of the tissues. Mere vesication he thinks ought not to be considered more than a minor evil in comparison with the cessation of life.

CITRATE OF SODA IN GLUCOSURIA.—A French writer, quoted in *Ranking's Abstract*, recommends citrate of soda in daily doses of a-half drachm to a drachm as a remedy in diabetes. It has been shown by analysis, he says, that sugar disappears from the urine when this salt is used with the food instead of common salt.—*Pacific Med. & Surg. Journal.*

PHOSPHORUS PILLS.—The formula of Dr. Radcliffe is as follows:—Phosphorus 6 grains, suet 600 grains. Melt the suet in a stoppered bottle capable of holding twice the quantity. Put in the phosphorus, and shake until the mixture becomes solid. Roll into three-grain pills, and cover with gelatine. Each pill will contain the thirty-third of a grain of phosphorus.—*Ibid.*

DEATH FROM SWALLOWING TWO OUNCES OF CHLOROFORM.—Dr. D. W. Stormont, of Topeka, Kansas, reports (*Leavenworth Medical Herald*) a case of suicide by the internal administration of chloroform. The patient was 26 years of age, and in good health at the time. He swallowed two ounces of undiluted chloroform at a single draught. In three minutes after he had

laid himself composedly down, he could with difficulty be aroused from the stupor into which he was rapidly sinking; and though he could not speak, he indicated that he had severe pain in the region of the stomach. In five minutes, he was entirely unconscious and breathing stertorously. He died, in just one hour after taking the draught. Medical assistance, from some cause, did not arrive until a few minutes before he died, and nothing was done to counteract the effects of the poison. At the *post mortem* examination, the surface generally was livid; the face, neck, chest, and nails very much so. Bloody froth was issuing from the mouth and nostrils. On opening the chest, both lungs were found to be dark externally, and fully distended. They were uniformly congested with dark, liquid blood, and the posterior portions were perfectly engorged with it. Both sides of the heart were nearly full of black, uncoagulated blood; the liver and spleen both normal externally, but somewhat softened, and filled with dark, liquid blood. The œsophagus was congested. The stomach, at the cardiac end, and along the greater curvature, and half way up each side, was discolored externally, dotted over with ecchymosed-looking patches, giving it a mottled appearance. It contained two or three ounces of a light-colored liquid, which had a slight odor of chloroform. At the cardiac end, internally, and along the bottom, nearly to the pyloric end, the mucous membrane was of a dark-red color, softened, and easily peeled off with the thumb-nail. Up the sides, it was of a brighter red, speckled appearance, and not softened. The intestines were healthy. Circumstances prevented the extension of the examination, which is much to be regretted. The reporter of the case closes with the following remarks:—"Recoveries are recorded from drinking two ounces, or even more, of chloroform, but active measures were used—as the stomach-pump, emetics, stimulants, internal and external artificial respiration, galvanism, etc. As an internal stimulant, the spirits of ammonia, or the carbonate of ammonia, is the best. Very dangerous symptoms have been produced by half an ounce, and death has been caused by one ounce. Dr. Stillé says:—'When death has been produced by the internal use of chloroform, its local irritant action has evidently been the chief cause of the fatal result.' In this case, death followed too soon to have been produced in this way. It was more probably caused by the action of the poison on the blood and the cerebro-spinal system, as in prolonged inhalation of the vapor. A peculiarity of this case, is the shortness of the time between taking the chloroform and death, as compared with other fatal cases reported."

MORTALITY REPORT FOR THE MONTH OF SEPTEMBER:—

Dr. Rauch submitted the following mortality report for the month of September, 1867:—

CAUSES OF DEATH.

Abscess, pelvic	1	Fever, Scarlet,	3
Abscess, psoas	1	Fever, Typhoid,	18
Accidents	12	Fever, Typhus,	4
Edema-glottidis,	1	Gangrene of foot,	1
Anæmia,	1	Gangrene of foot and leg,	1
Angina,	1	Gastritis,	3
Apoplexy,	3	Gastritis, chronic,	1
Atrophy,	1	Hæmoptysis,	2
Birth, premature	12	Hæmoptysis, with phthisis,	1
" still	22	Heart Disease,	8
Bowels, inflammation of	6	Heart, valvular disease of,	2
Bowels, ulceration of	1	Hepatitis, chronic,	1
Brain Disease,	1	Hernia, strangulated	1
" Congestion of,	4	Hydrocephalus,	3
" Dropsy,	1	Inanition,	5
" Inflammation of,	5	Laryngitis,	1
" Pressure of occipital bone,	1	Liver, atrophy of	1
Bronchitis,	1	Liver, hypertrophy	1
Cancer of stomach,	2	Lungs, congestion of	1
" "encephaloid of mesentery	1	Measles,	10
" uterus,	1	Meningitis,	6
Cerebritis,	1	Meningitis, Cerebral,	2
Cholera-Morbus,	2	Meningitis, Cerebro-Spinal,	3
Cholera Infantum,	82	Meningitis, Tubercular	2
Cholera Infantum and teething,	2	Mouth, excessive morbid growth of	1
Convulsions,	25	Œsophagus, inflammation of	1
Convulsions following measles,	1	Ovarian, disease of	1
Croup,	1	Old Age,	3
Croup, pseudo-membranus,	1	Peritonitis,	2
Cynanche tonsillaris,	1	Pharyngitis,	1
Debility,	15	Pneumonia,	7
Debility from insanity,	1	Pneumonia, chronic,	1
Delirium Tremens,	1	Phthisis Pulmonalis,	24
Diphtheria,	5	Phthisis, Bronchial,	1
Diarrhœa,	36	Potts' disease,	1
Diarrhœa, chronic,	7	Small-Pox,	13
Diarrhœa and teething,	2	Suicide by pistol wound,	2
Dropsy,	1	Tabes Mesenterica,	26
Dropsy, after intermittent fever,	1	Tabes, Mesenterica, with thrush,	1
Dysentery,	19	Tetanus, Traumatic,	1
Dysentery, following measles,	1	Teething,	20
Encephalitis,	3	Teething and Diarrhœa,	2
Encephalo-meningitis,	1	Teething and Whooping-Cough,	1
Enteritis,	3	Throat, Canker sore,	1
Epilepsy,	1	Throat, malformation of,	1
Erysipelas, gangrenus,	1	Urine, suppression of,	1
Fever, Congestive	4	Whooping-Cough,	6
Fever, Intermittent,	1	Unknown,	4
Fever, Puerperal,	4		
Total,			507

COMPARISON.

Total deaths for the month of September, 1867,	507
Total deaths for the month of September, 1866,	759
Decrease,	252

AGES OF THE DECEASED.—Under 5 years, 338; over 5 and under 10 years, 14; over 10 and under 20, 15; over 20 and under 30, 27; over 30 and under 40, 23; over 40 and under 50, 16; over 50 and under 60, 18; over 60 and under 70, 10; over 70 and under 80, 5; over 80 and under 90, 3; still born and premature, 34; unknown, 4. Total, 507.

NATIVITIES.

Chicago,	311	Germany,	42	Poland,	1
Other parts U. S.,	75	Holland,	3	Sweden,	4
Bohemia,	5	Hanover,	1	Scotland,	2
Canada,	5	Ireland,	35	Switzerland,	3
Denmark,	3	Norway,	8	Unknown,	1
England,	5	Prussia,	3	Total,	507

SEXES.

Males,	268	Females,	239	Total,	507
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MARRIED AND SINGLE.

Single,	428	Married,	79	Total,	507
Colored,	3	White,	504	Total,	507

DEATHS IN EACH WARD.

The following table gives the average of deaths in each ward, on the basis of the population of 1866:

Ward.	Mortality.	Pop. in 1866.	One death in	Ward.	Mortality.	Pop. in 1866.	One death in
1---	1	9,668	9,668	14---	34	12,108	356 4-34
2---	10	12,985	1,298 1-2	15---	50	15,766	315 16-50
3---	15	15,738	1,049 3-15	16---	31	14,912	481 1-31
4---	22	10,884	494 16-24	County hos.,	10		
5---	34	9,610	223 28-24	Canal,	1		
6---	34	10,580	311 6-34	Bridewell,	1		
7---	69	18,755	271 56-69	Home of the			
8---	40	10,429	260 29-40	Friendl's,	5		
9---	28	13,940	497 24-28	Marine hos.,	1		
10---	12	11,416	951 1-3	Mercy hos.,	2		
11---	35	12,924	369 9-35	Orph. asy.,	3		
12---	43	12,695	295 10-43	St. Luke hos.	1		
13---	24	8,188	341 1-6	Lake Mich.,	1		
Total,							507

DENSITY OF OZONE.—M. Soret has proved the density of ozone to be one and a-half times that of oxygen, by the test of diffusion, the relative velocities of which correspond to the theoretical calculation on the assumption of the above proportion; as well as by comparisons of volume, in which it is found that by converting ozone into oxygen, its volume is increased one-half.

MONEY RECEIPTS TO OCTOBER 22D.—Drs. D. J. Hussey, Cherry Valley, Ill., \$3; T. T. Ellis, Chicago, 3; Wm. Law, Shullsburgh, Wis., 3.75; H. N. Hurlbut, Chicago, 2; A. C. Simonton, Logan, Ind., 6; A. S. Stewart, Pawnee City, Neb., 2; J. Woodworth, Marengo, Ill., 3.

TO PHYSICIANS.—By request, Prof. Horatio R. Storer will deliver his second private course of twelve Lectures upon the TREATMENT OF THE SURGICAL DISEASES OF WOMEN, during the first fortnight of December, at his rooms in Boston. Fee \$50, and Diploma required to be shown.

Certificates of attendance upon the course just completed have been issued to the following gentlemen: Dr. C. M. Carleton, Norwich, Ct.; Daniel Mann, Pelham, N.H.; G. E. Bullard, Blackstone, Mass.; J. A. McDonough, Boston, Mass.; M. C. Talbott, Warren, Pa.; H. Gerould, Erie, Pa.; E. F. Upham, West Randolph, Vt.; W. L. Wells, Howall, Mich.; and W. A. I. Case, Hamilton, C.W.

Hotel Pelham, Boston, 1st July, 1867.

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